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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Comprehensive Assessment Information Rule
REPORTING FORM

89 JUN -7 AM 9:08
Office of Toxic Substances
Office

When completed, send this form to:

Document Processing Center
Office of Toxic Substances, TS-790
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460
Attention: CAIR Reporting Office

For Agency Use Only:

Date of Receipt: _____

Document
Control Number: _____

Docket Number: _____

CAIR REPORTING FORM CHECKLIST

THIS CHECKLIST IS NOT REQUIRED TO BE SUBMITTED, **IT IS FOR RESPONDENT'S INTERNAL USE ONLY**

This form is intended to gather information on a specific listed substance that is manufactured, imported, or processed at one facility. Respondents must answer only those sections or specific questions required in the CAIR rule.

Respondents may use the same form each time they must report. The original copy of the form received by respondents should be kept on file and used to make copies of the questions required to be answered. These copies may then be circulated to those employees who will complete the form. Respondents must submit only one copy of each question rather than compiling parts of each question from various employees and submitting them together as one question.

Respondents need only supply information on the form that is "known to or reasonably ascertainable by" the respondent. Refer to the glossary for this definition. All reports with incomplete responses will be assessed as invalid and a Notice of Noncompliance Error Letter and a copy of the question will be sent to you for completion.

Before completing any portion of this form, please read the instruction booklet. The booklet contains general instructions on how to comply with the rule, supplemental instructions and sample answers for many questions, and a glossary containing definitions of key terms. Refer to the glossary whenever an unknown term appears to examine the definition provided.

If you cannot determine your reporting obligations, you should call the TSCA Assistance Office, U.S. EPA, at (202) 554-1404. To obtain additional forms, write to the TSCA Assistance Office (TS-779), ATTN: CAIR Form Request, Office of Toxic Substances, Environmental Protection Agency, Room E-543, 401 M St., SW, Washington, DC 20460, or call at (202) 554-1404.

BEFORE RETURNING YOUR COMPLETED CAIR FORM PLEASE CHECK THE FOLLOWING:

- ☐ 1. Have you completed and included Section 1 for each form you are submitting?
- ☐ 2. Have you submitted a standard chemical name and Chemical Abstract Service Registry Number for each chemical you are reporting on?
- ☐ 3. Does your submitted form include the original certification signatures as required for questions 1.06, 1.07, and 1.08?

- _____ 4. Have you submitted a completed separate form for each substance you are required to report on?
- _____ 5. Have you submitted a completed separate form for each site at which you manufacture, import, or process a listed substance?
- _____ 6. For each listed substance you must report on, have you reported on all activities you engage in at each site using the listed substance on the same reporting form?
- _____ 7. If you are claiming information as Confidential Business Information (CBI), have you completed the CBI substantiation form in Appendix II of the form for each category containing CBI? Failure to submit a completed CBI substantiation form with a reporting form containing CBI will result in the waiver of your claim of confidentiality.
- _____ 8. For each question that you are required to answer, have you responded by either providing the data, stating not applicable ("N/A"), or, if the question permits, stating unknown ("UK")?
- _____ 9. Have you right justified your responses to questions asked that require respondents to give a numeric response in a series of boxes (e.g., the answer "372" is entered as [0][0][3][7][2])?
- _____ 10. Have your responses been given in alpha, numeric or alpha-numeric form such as 3 million or 3,000,000? Responses must not be given in scientific notation such as 3×10^6 .
- _____ 11. If you needed additional space to report the required data, have you checked the continuation sheet box at the bottom of each page that requires additional space; attached additional copies of the specific questions of this form that contain additional information; and listed the attachments in Appendix I of the reporting form?

SECTION 1 GENERAL MANUFACTURER, IMPORTER, AND PROCESSOR INFORMATION

PART A GENERAL REPORTING INFORMATION

1.01 This Comprehensive Assessment Information Rule (CAIR) Reporting Form has been completed in response to the Federal Register Notice of..... [1][2] [2][2] [8][8]
CBI mo. day year

☐ a. If a Chemical Abstracts Service Number (CAS No.) is provided in the Federal Register, list the CAS No. [0][2][6][4][7][1]-[6][2]-[5]

b. If a chemical substance CAS No. is not provided in the Federal Register, list either (i) the chemical name, (ii) the mixture name, or (iii) the trade name of the chemical substance as provided in the Federal Register.

(i) Chemical name as listed in the rule NA

(ii) Name of mixture as listed in the rule

(iii) Trade name as listed in the rule

c. If a chemical category is provided in the Federal Register, report the name of the category as listed in the rule, the chemical substance CAS No. you are reporting on which falls under the listed category, and the chemical name of the substance you are reporting on which falls under the listed category.

Name of category as listed in the rule NA

CAS No. of chemical substance [][][][][][]-[][]-[][]

Name of chemical substance

1.02 Identify your reporting status under CAIR by circling the appropriate response(s).

CBI Manufacturer 1

☐ Importer 2

Processor 3

X/P manufacturer reporting for customer who is a processor 4

X/P processor reporting for customer who is a processor 5

☐ Mark (X) this box if you attach a continuation sheet.

1.03 Does the substance you are reporting on have an "x/p" designation associated with it in the above-listed Federal Register Notice?

CBI

Yes ☒ Go to question 1.04

☐

No ☐ Go to question 1.05

1.04 a. Do you manufacture, import, or process the listed substance and distribute it under a trade name(s) different than that listed in the Federal Register Notice? Circle the appropriate response.

CBI

Yes NA 1

☐

No 2

b. Check the appropriate box below:

☐ You have chosen to notify your customers of their reporting obligations
Provide the trade name(s)

☐ You have chosen to report for your customers

☐ You have submitted the trade name(s) to EPA one day after the effective date of the rule in the Federal Register Notice under which you are reporting.

1.05 If you buy a trade name product and are reporting because you were notified of your reporting requirements by your trade name supplier, provide that trade name.

CBI

Trade name NA

☐

Is the trade name product a mixture? Circle the appropriate response.

Yes 1

No 2

1.06 Certification -- The person who is responsible for the completion of this form must sign the certification statement below:

CBI

☐ "I hereby certify that, to the best of my knowledge and belief, all information entered on this form is complete and accurate."

Christine M. Merli, I.H.

NAME

Christine M. Merli, I.H.

SIGNATURE

6/6/89

DATE SIGNED

Director, Health & Ind. Hygiene (314) 968 - 6041

TITLE

TELEPHONE NO.

☐ Mark (X) this box if you attach a continuation sheet.

- 1.07 Exemptions From Reporting -- If you have provided EPA or another Federal agency with the required information on a CAIR Reporting Form for the listed substance within the past 3 years, and this information is current, accurate, and complete for the time period specified in the rule, then sign the certification below. You are required to complete section 1 of this CAIR form and provide any information now required but not previously submitted. Provide a copy of any previous submissions along with your Section 1 submission.

CBI

☐

"I hereby certify that, to the best of my knowledge and belief, all required information which I have not included in this CAIR Reporting Form has been submitted to EPA within the past 3 years and is current, accurate, and complete for the time period specified in the rule."

_____ NA NAME	_____ SIGNATURE	_____ DATE SIGNED
_____ TITLE	(_____) _____ TELEPHONE NO.	_____ DATE OF PREVIOUS SUBMISSION

- 1.08 CBI Certification -- If you have asserted any CBI claims in this report you must certify that the following statements truthfully and accurately apply to all of those confidentiality claims which you have asserted.

CBI

☐

"My company has taken measures to protect the confidentiality of the information, and it will continue to take these measures; the information is not, and has not been, reasonably ascertainable by other persons (other than government bodies) by using legitimate means (other than discovery based on a showing of special need in a judicial or quasi-judicial proceeding) without my company's consent; the information is not publicly available elsewhere; and disclosure of the information would cause substantial harm to my company's competitive position."

_____ NA NAME	_____ SIGNATURE	_____ DATE SIGNED
_____ TITLE	(_____) _____ TELEPHONE NO.	

☐ Mark (X) this box if you attach a continuation sheet.

1.09 Facility Identification

1.10 Company Headquarters Identification

☐ Mark (X) this box if you attach a continuation sheet.

1.11 Parent Company Identification

CBI Name [P][E][T][R][O][L][I][T][E] [C][O][R][P][O][R][A][T][I][O][N] [] [] [] []

[] Address [1] [0] [0] [] [N] [O] [R] [T] [H] [] [B] [R] [O] [A] [D] [W] [A] [Y] [] [] [] [] [] [] [] []
Street

[S][T] [L][O][U][I][S] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] []
City

[M][0] [6][3][1][0][2]--[][][][]
State Zip

Dun & Bradstreet Number [0] [0] - [6] [2] [8] - [7] [1] [6] [3]

1.12 Technical Contact

CBI Name [C] [H] [R] [I] [S] [T] [I] [N] [E] [] [M .] [] [M] [E] [R] [L] [I] [] [] [] [] [] [] [] []

[] Title [D] [I] [R.] [] [H] [E] [A] [L] [T] [H] [] [&] [] [I] [N] [D.] [] [H] [Y] [G] [I] [E] [N] [E] [] []

Address [3][6][9] [] M A R S H A L L [] A V E N U E [] [] [] [] []
Street

[illegible]

[M][O] [6][3][1][1][9]--[][][][]
State Zip

Telephone Number[3][1][4]-[9][6][8]-[6][0][4][1]

1.13 This reporting year is from 11 87 to 10 88
Mo. Year Mo. Year

☐ Mark (X) this box if you attach a continuation sheet.

NA

CBI Name of Seller []

[illegible]

Street

City

[] [] [] [] [] [] [] -- [] [] [] []

State

Zio

Employer ID Number[][] [][] [][] [][]

Date of Sale [] [] [] [] [] []

Mo.

Da v

Year

[illegible]

Telephone Number[][]-[][]-[][][]

NA

[illegible][illegible]

Street

City

[] [] [] [] [] [] [] [] -- { [] [] } [] []

State

Zip

Employer ID Number[][][][][][][][]

[illegible]

Mo.

Day

Year

[illegible]

Telephone Number[][]-[][]-[][]

☐ Mark (X) this box if you attach a continuation sheet.

..16 For each classification listed below, state the quantity of the listed substance that was manufactured, imported, or processed at your facility during the reporting year.

CBI

☐

Classification

Quantity (kg/yr)

Manufactured NA

Imported NA

Processed (include quantity repackaged) 2,270

Of that quantity manufactured or imported, report that quantity:

In storage at the beginning of the reporting year NA

For on-site use or processing NA

For direct commercial distribution (including export) NA

In storage at the end of the reporting year NA

Of that quantity processed, report that quantity:

In storage at the beginning of the reporting year 120

Processed as a reactant (chemical producer) 2,270

Processed as a formulation component (mixture producer) NA

Processed as an article component (article producer) NA

Repackaged (including export) NA

In storage at the end of the reporting year 580

☐ Mark (X) this box if you attach a continuation sheet.

PART C IDENTIFICATION OF MIXTURES

1.17 Mixture -- If the listed substance on which you are required to report is a mixture or a component of a mixture, provide the following information for each component chemical. (If the mixture composition is variable, report an average percentage of each component chemical for all formulations.)

CBI

[]

[illegible]

☐ Mark (X) this box if you attach a continuation sheet.

[]

Number of years manufactured yrs.

Number of years imported yrs.

Number of years processed yrs.

CBI

[]

Year ending
Mo. Year

Quantity manufactured kg

Quantity imported kg

Quantity processed kg

CBI

[]

Year ending [] [] [] []
Mo. Year

Quantity manufactured kg

Quantity imported kg

Quantity processed kg

Year ending [] [] [] []
Mo. Year

Quantity manufactured kg

~~Quantity Imported~~ kg

Quantity processed kg

11

2.04 State the quantity of the listed substance that your facility manufactured, imported, or processed during the 3 corporate fiscal years preceding the reporting year in descending order.

CBI

☐ Year ending [1]0 [8]7
Mo. Year

Quantity manufactured NA kg

Quantity imported NA kg

Quantity processed 1370 kg

Year ending [1]0 [8]6
Mo. Year

Quantity manufactured NA kg

Quantity imported NA kg

Quantity processed 0 kg

Year ending [1]0 [8]5
Mo. Year

Quantity manufactured NA kg

Quantity imported NA kg

Quantity processed 0 kg

2.05 Specify the manner in which you manufactured the listed substance. Circle all appropriate process types.

CBI

☐ Continuous process NA 1

Semicontinuous process 2

Batch process 3

☐ Mark (X) this box if you attach a continuation sheet.

2.06 Specify the manner in which you processed the listed substance. Circle all appropriate process types.

- ☐ Continuous process 1
- ☐ Semicontinuous process 2
- ☐ Batch process 3

2.07 State your facility's name-plate capacity for manufacturing or processing the listed substance. (If you are a batch manufacturer or batch processor, do not answer this question.)

- ☐ Manufacturing capacity NA kg/yr
- ☐ Processing capacity NA kg/yr

2.08 If you intend to increase or decrease the quantity of the listed substance manufactured, imported, or processed at any time after your current corporate fiscal year, estimate the increase or decrease based upon the reporting year's production volume.

<input type="checkbox"/>	Manufacturing Quantity (kg)	Importing Quantity (kg)	Processing Quantity (kg)
Amount of increase	NA	NA	NA
Amount of decrease	NA	NA	NA

☐ Mark (X) this box if you attach a continuation sheet.

2.09 For the three largest volume manufacturing or processing process types involving the listed substance, specify the number of days you manufactured or processed the listed substance during the reporting year. Also specify the average number of hours per day each process type was operated. (If only one or two operations are involved, list those.)

CBI

☐

	<u>Days/Year</u>	<u>Average Hours/Day</u>
Process Type #1 (The process type involving the largest quantity of the listed substance.)		
Manufactured	NA	NA
Processed	6	0.5
Process Type #2 (The process type involving the 2nd largest quantity of the listed substance.)		
Manufactured		
Processed		
Process Type #3 (The process type involving the 3rd largest quantity of the listed substance.)		
Manufactured		
Processed		

2.10 State the maximum daily inventory and average monthly inventory of the listed substance that was stored on-site during the reporting year in the form of a bulk chemical.

CBI

☐

Maximum daily inventory kg
Average monthly inventory kg

☐ Mark (X) this box if you attach a continuation sheet.

2.11 Related Product Types -- List any byproducts, coproducts, or impurities present with the listed substance in concentrations greater than 0.1 percent as it is manufactured, imported, or processed. The source of byproducts, coproducts, or impurities means the source from which the byproducts, coproducts, or impurities are made or introduced into the product (e.g., carryover from raw material, reaction product, etc.).

CBI

☐

<u>CAS No.</u>	<u>Chemical Name</u>	<u>Byproduct, Coproduct or Impurity¹</u>	<u>Concentration (%) (specify \pm % precision)</u>	<u>Source of Byproducts, Coproducts, or Impurities</u>
<u>UK</u>	<u>UK</u>	<u>UK</u>	<u>UK</u>	<u>UK</u>

¹Use the following codes to designate byproduct, coproduct, or impurity:

B = Byproduct
C = Coproduct
I = Impurity

☐ Mark (X) this box if you attach a continuation sheet.

2.12 Existing Product Types -- List all existing product types which you manufactured, imported, or processed using the listed substance during the reporting year. List the quantity of listed substance you use for each product type as a percentage of the total volume of listed substance used during the reporting year. Also list the quantity of listed substance used captively on-site as a percentage of the value listed under column b., and the types of end-users for each product type. (Refer to the instructions for further explanation and an example.)

CBI

☐

a.	b.	c.	d.
Product Types ¹	% of Quantity Manufactured, Imported, or Processed	% of Quantity Used Captively On-Site	Type of End-Users ²
X	100	100	I

¹Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/ Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/ Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) <u>Specialty surfactant</u>

²Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

- 2.13 Expected Product Types -- Identify all product types which you expect to manufacture, import, or process using the listed substance at any time after your current corporate fiscal year. For each use, specify the quantity you expect to manufacture, import, or process for each use as a percentage of the total volume of listed substance used during the reporting year. Also list the quantity of listed substance used captively on-site as a percentage of the value listed under column b., and the types of end-users for each product type. (Refer to the instructions for further explanation and an example.)

CBI

☐

a.	b.	c.	d.
Product Types ¹	% of Quantity Manufactured, Imported, or Processed	% of Quantity Used Captively On-Site	Type of End-Users ²
X	100	100	I

¹Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/ Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/ Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) <u>Specialty surfactant</u>

²Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

2.14 Final Product -- Complete the following table for each type of final product manufactured, imported, or processed at your facility that contains the listed substance other than as an impurity.

☐

a.	b.	c.	d.
Product Type ¹	Final Product's Physical Form ²	Average % Composition of Listed Substance in Final Product	Type of End-Users ³
NA			

¹Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/ Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/ Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) _____

²Use the following codes to designate the final product's physical form:

A = Gas	F2 = Crystalline solid
B = Liquid	F3 = Granules
C = Aqueous solution	F4 = Other solid
D = Paste	G = Gel
E = Slurry	H = Other (specify) _____
F1 = Powder	

³Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

2.15 Circle all applicable modes of transportation used to deliver bulk shipments of the
CBI listed substance to off-site customers.

☐ Truck NA 1
Railcar 2
Barge, Vessel 3
Pipeline 4
Plane 5
Other (specify) 6

2.16 Customer Use -- Estimate the quantity of the listed substance used by your customers
CBI or prepared by your customers during the reporting year for use under each category
of end use listed (i-iv).

☐

Category of End Use

i. Industrial Products

Chemical or mixture NA kg/yr
Article NA kg/yr

ii. Commercial Products

Chemical or mixture NA kg/yr
Article NA kg/yr

iii. Consumer Products

Chemical or mixture NA kg/yr
Article NA kg/yr

iv. Other

Distribution (excluding export) NA kg/yr
Export NA kg/yr
Quantity of substance consumed as reactant NA kg/yr
Unknown customer uses NA kg/yr

☐ Mark (X) this box if you attach a continuation sheet.

2.17 State the quantity of the listed substance that you exported during the reporting
CBI year.

☐

In bulk kg/yr
As a mixture kg/yr
In articles kg/yr

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 3 PROCESSOR RAW MATERIAL IDENTIFICATION

PART A GENERAL DATA

- 3.01 Specify the quantity purchased and the average price paid for the listed substance for each major source of supply listed. Product trades are treated as purchases.
 CBI The average price is the market value of the product that was traded for the listed substance.

☐

<u>Source of Supply</u>	<u>Quantity (kg)</u>	<u>Average Price (\$/kg)</u>
The listed substance was manufactured on-site.		
The listed substance was transferred from a different company site.		
The listed substance was purchased directly from a manufacturer or importer.	2750	\$2.9
The listed substance was purchased from a distributor or repackager.		
The listed substance was purchased from a mixture producer.		

- 3.02 Circle all applicable modes of transportation used to deliver the listed substance to your facility.

CBI

☐

Truck	1
Railcar	2
Barge, Vessel	3
Pipeline	4
Plane	5
Other (specify) _____	6

☐ Mark (X) this box if you attach a continuation sheet.

3.03 a. Circle all applicable containers used to transport the listed substance to your facility.

CBI

☐

Bags 1
Boxes 2
Free standing tank cylinders 3
Tank rail cars 4
Hopper cars 5
Tank trucks 6
Hopper trucks 7
Drums 8
Pipeline 9
Other (specify) 10

b. If the listed substance is transported in pressurized tank cylinders, tank rail cars, or tank trucks, state the pressure of the tanks.

Tank cylinders	NA	mmHg
Tank rail cars	NA	mmHg
Tank trucks	NA	mmHg

☐ Mark (X) this box if you attach a continuation sheet.

PART B RAW MATERIAL IN THE FORM OF A MIXTURE

3.04 If you obtain the listed substance in the form of a mixture, list the trade name(s) of the mixture, the name of its supplier(s) or manufacturer(s), an estimate of the average percent composition by weight of the listed substance in the mixture, and the amount of mixture processed during the reporting year.

CBI

☐

<u>Trade Name</u>	<u>Supplier or Manufacturer</u>	<u>Average % Composition by Weight (specify \pm % precision)</u>	<u>Amount Processed (kg/yr)</u>
NA			

☐ Mark (X) this box if you attach a continuation sheet.

PART C RAW MATERIAL VOLUME

3.05 State the quantity of the listed substance used as a raw material during the
CBI reporting year in the form of a class I chemical, class II chemical, or polymer, and
the percent composition, by weight, of the listed substance.

☐

	Quantity Used (kg/yr)	% Composition by Weight of Listed Sub- stance in Raw Material (specify \pm % precision)
Class I chemical	2269	100
Class II chemical	NA	
Polymer	NA	

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 4 PHYSICAL/CHEMICAL PROPERTIES

General Instructions:

If you are reporting on a mixture as defined in the glossary, reply to questions in Section 4 that are inappropriate to mixtures by stating "NA -- mixture."

For questions 4.06-4.15, if you possess any hazard warning statement, label, MSDS, or other notice that addresses the information requested, you may submit a copy or reasonable facsimile in lieu of answering those questions which it addresses.

PART A PHYSICAL/CHEMICAL DATA SUMMARY

- 4.01 Specify the percent purity for the three major¹ technical grade(s) of the listed substance as it is manufactured, imported, or processed. Measure the purity of the substance in the final product form for manufacturing activities, at the time you import the substance, or at the point you begin to process the substance.

☐ CBI

	<u>Manufacture</u>	<u>Import</u>	<u>Process</u>
Technical grade #1	<u>NA</u> % purity	<u>NA</u> % purity	<u>100</u> % purity
Technical grade #2	<u> </u> % purity	<u> </u> % purity	<u> </u> % purity
Technical grade #3	<u> </u> % purity	<u> </u> % purity	<u> </u> % purity

¹Major = Greatest quantity of listed substance manufactured, imported or processed.

- 4.02 Submit your most recently updated Material Safety Data Sheet (MSDS) for the listed substance, and for every formulation containing the listed substance. If you possess an MSDS that you developed and an MSDS developed by a different source, submit your version. Indicate whether at least one MSDS has been submitted by circling the appropriate response.

Yes ①
No 2

Indicate whether the MSDS was developed by your company or by a different source.

Your company 1
Another source ②

☒ Mark (X) this box if you attach a continuation sheet.

4.03 Submit a copy or reasonable facsimile of any hazard information (other than an MSDS) that is provided to your customers/users regarding the listed substance or any formulation containing the listed substance. Indicate whether this information has been submitted by circling the appropriate response. NA

Yes 1
No 2

4.04 For each activity that uses the listed substance, circle all the applicable number(s) corresponding to each physical state of the listed substance during the activity listed. Physical states for importing and processing activities are determined at the time you import or begin to process the listed substance. Physical states for manufacturing, storage, disposal and transport activities are determined using the final state of the product.

CBI

☐

Activity	Physical State				
	Solid	Slurry	Liquid	Liquified Gas	Gas
Manufacture NA	1	2	3	4	5
Import NA	1	2	3	4	5
Process	1	2	3	4	5
Store	1	2	3	4	5
Dispose NA	1	2	3	4	5
Transport NA	1	2	3	4	5

☐ Mark (X) this box if you attach a continuation sheet.

- 4.05 Particle Size -- If the listed substance exists in particulate form during any of the following activities, indicate for each applicable physical state the size and the percentage distribution of the listed substance by activity. Do not include particles ≥ 10 microns in diameter. Measure the physical state and particle sizes for importing and processing activities at the time you import or begin to process the listed substance. Measure the physical state and particle sizes for manufacturing storage, disposal and transport activities using the final state of the product.

CBI

☐

<u>Physical State</u>		<u>Manufacture</u>	<u>Import</u>	<u>Process</u>	<u>Store</u>	<u>Dispose</u>	<u>Transport</u>
Dust	<1 micron	_____	_____ ←	NA	→ _____	_____	_____
	1 to <5 microns	_____	_____ ←	NA	→ _____	_____	_____
	5 to <10 microns	_____	_____ ←	NA	→ _____	_____	_____
Powder	<1 micron	_____	_____ ←	NA	→ _____	_____	_____
	1 to <5 microns	_____	_____ ←	NA	→ _____	_____	_____
	5 to <10 microns	_____	_____ ←	NA	→ _____	_____	_____
Fiber	<1 micron	_____	_____ ←	NA	→ _____	_____	_____
	1 to <5 microns	_____	_____ ←	NA	→ _____	_____	_____
	5 to <10 microns	_____	_____ ←	NA	→ _____	_____	_____
Aerosol	<1 micron	_____	_____ ←	NA	→ _____	_____	_____
	1 to <5 microns	_____	_____ ←	NA	→ _____	_____	_____
	5 to <10 microns	_____	_____ ←	NA	→ _____	_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

PART B FIRE, EXPLOSION, AND OTHER HAZARD DATA

- 4.06 For each physical state of the listed substance, specify the corresponding flashpoint, and the test method used to derive the flashpoint value.

Solid

Flashpoint °C

Test method

Liquid

Flashpoint °C

Test method

Gas/Vapor

Flashpoint °C

Test method

Indicate if hazard information/MSDS has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

- 4.07 Indicate the temperature at which the listed substance undergoes autopolymerization or autodecomposition.

Autopolymerizes at °C

Autodecomposes at °C

Indicate if hazard information/MSDS has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

☐ Mark (X) this box if you attach a continuation sheet.

4.08 Indicate the flammable limits in air (% by volume) for the listed substance at standard temperature and pressure.

Lower limit %
Upper limit %

Indicate if hazard information/MSDS has been submitted in lieu of response by circling the appropriate response.

Yes 1
No 2

☐ Mark (X) this box if you attach a continuation sheet.

- 4.09 Extinguishing Media -- Identify (Y/N/NA/UK) all known methods for extinguishing flames caused by each product type which contains the listed substance. (Refer to the instructions for the definition of Y, N, NA and UK.)

<u>Extinguishing Media</u>	<u>Product Types Containing the Listed Substance¹</u>					
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
Water						
Foam						
CO ₂						
Dry chemical (e.g., sodium bicarbonate)						
Halogenated hydrocarbon (e.g., carbon tetrachloride, methyl bromide)						
Other (specify) _____						

Indicate if hazard information/MSDS has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹Identify the product types listed under each column (1-6) in the following table:

<u>Product Type No.</u>	<u>Product Type Identity</u>
1	
2	
3	
4	
5	
6	

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☐ Mark (X) this box if you attach a continuation sheet.

- 4.10 Special Firefighting Procedures -- Identify (Y/N/NA/UK) all known restrictions on firefighting procedures used to combat fires caused by each product type which contains the listed substance. (Refer to the instructions for definitions of Y, N, NA and UK.)

Special Firefighting Procedures	Product Types Containing the Listed Substance ¹					
	1	2	3	4	5	6
Do not use water						
Do not increase air pressure						
Other (specify) _____						

Indicate if hazard information/MSDS has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹Identify the product types listed under each column (1-6) in the following table:

Product Type No.	Product Type Identity
1	
2	
3	
4	
5	
6	

☐ Mark (X) this box if you attach a continuation sheet.

- 4.11 Incompatibility -- List all chemicals, materials, or categories of chemicals or materials that you know are incompatible with the listed substance and the reason why they are incompatible. (Refer to the instructions for further explanation and an example.)

<u>CAS No.</u>	<u>Name</u>	<u>Reaction (specify)</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Indicate if hazard information/MSDS has been submitted in lieu of response by circling the appropriate response.

Yes 1
No 2

- 4.12 Autoxidation -- Is the listed substance capable of autoxidation? Circle the appropriate response.

Yes 1
No 2
Unknown 3

Indicate if hazard information/MSDS has been submitted in lieu of response by circling the appropriate response.

Yes 1
No 2

☐ Mark (X) this box if you attach a continuation sheet.

- 4.13 Indicate the autoignition temperature for the listed substance and the test method used to derive this value.

Autoignition temperature °C

Test method

Indicate if hazard information/MSDS has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

- 4.14 Vapor in Cargo Tanks -- If storing the listed substance in a cargo tank causes vapor problems, such as peroxide formation, reaction with moisture, etc., specify the problem and necessary controls or restrictions used to remedy each problem.

Vapor Problem

Controls/Restrictions

Peroxide formation

Reaction with moisture

Combustion

Other (specify)

Indicate if hazard information/MSDS has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

☐ Mark (X) this box if you attach a continuation sheet.

4.15 Shipment Procedures -- If you use an inhibitor or stabilizer when shipping the listed substance in bulk form, specify its name, whether it inhibits or stabilizes the listed substance, the amount normally added, and the duration of its effectiveness.

CBI

☐

<u>Name of Additive</u>	<u>Inhibitor or Stabilizer¹</u>	<u>Amount Normally Added (ppm or %)</u>	<u>Duration of Effectiveness (specify units)</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Indicate if hazard information/MSDS has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹Use the following codes to designate inhibitor and stabilizer:

I = Inhibitor
S = Stabilizer

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 5 ENVIRONMENTAL FATE

PART A RATE CONSTANTS AND TRANSFORMATION PRODUCTS

5.01 Indicate the rate constants for the following transformation processes.

a. Photolysis:

Absorption spectrum coefficient (peak) UK (1/M cm) at _____ nm
Reaction quantum yield, ϕ UK at _____ nm
Direct photolysis rate constant, k_p , at ... UK 1/hr _____ latitude

b. Oxidation constants at 25°C:

For 1O_2 (singlet oxygen), k_{ox} UK 1/M hr
For RO_2 (peroxy radical), k_{ox} UK 1/M hr

c. Five-day biochemical oxygen demand, BOD_5 ... UK mg/l

d. Biotransformation rate constant:

For bacterial transformation in water, k_b ... UK 1/hr
Specify culture UK

e. Hydrolysis rate constants:

For base-promoted process, k_B UK 1/M hr
For acid-promoted process, k_A UK 1/M hr
For neutral process, k_N UK 1/hr

f. Chemical reduction rate (specify conditions) UK

g. Other (such as spontaneous degradation) ... UK

☐ Mark (X) this box if you attach a continuation sheet.

PART B PARTITION COEFFICIENTS

5.02 a. Specify the half-life of the listed substance in the following media.

<u>Media</u>	<u>Half-life (specify units)</u>
Groundwater	UK
Atmosphere	UK
Surface water	UK
Soil	UK

b. Identify the listed substance's known transformation products that have a half-life greater than 24 hours.

<u>CAS No.</u>	<u>Name</u>	<u>Half-life (specify units)</u>	<u>Media</u>
UK	UK	UK	in UK
			in
			in
			in

5.03 Specify the octanol-water partition coefficient, K_{ow} ... UK at 25°C

Method of calculation or determination

5.04 Specify the soil-water partition coefficient, K_d UK at 25°C

Soil type

5.05 Specify the organic carbon-water partition coefficient, K_{oc} UK at 25°C

5.06 Specify the Henry's Law Constant, H UK atm-m³/mole

☐ Mark (X) this box if you attach a continuation sheet.

5.07 List the bioconcentration factor (BCF) of the listed substance, the species for which it was determined, and the type of test used in deriving the BCF.

<u>Bioconcentration Factor</u>	<u>Species</u>	<u>Test</u> ¹
UK	UK	UK

¹Use the following codes to designate the type of test:

F = Flowthrough
S = Static

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 6 ECONOMIC AND FINANCIAL INFORMATION

6.01 Company Type -- Circle the number which most appropriately describes your company.

CBI

- ☐ Corporation 1
- ☐ Sole proprietorship 2
- Partnership 3
- Other (specify) _____ 4

6.02 At the end of the reporting year, were you constructing additional facilities at this site that were not yet in operation at the end of the reporting year, but which are now being used or will be used in the future for manufacturing, importing, or processing the listed substance? Circle the appropriate response.

CBI

- ☐ Yes 1
- No 2

6.03 List all of the product types that you manufacture that contain the listed substance as a raw material, and the percentage of the name-plate capacity dedicated to the listed substance that each product type represents. The total of all capacity percentiles should equal 100 percent. State the total name-plate capacity of the process type(s) used to manufacture all product types that contain the listed substance.

CBI

☐

Product Type	% Total Capacity

State the total name-plate capacity of the process type(s) used to manufacture all product types that contain the listed substance: _____ kg/yr

☐ Mark (X) this box if you attach a continuation sheet.

6.04 For each market listed below, state the quantity sold and the total sales value of the listed substance sold or transferred in bulk during the reporting year.

☐

<u>Market</u>	<u>Quantity Sold or Transferred (kg/yr)</u>	<u>Total Sales Value (\$/yr)</u>
Retail sales		
Distribution -- Wholesalers		
Distribution -- Retailers		
Intra-company transfer		
Repackagers		
Mixture producers		
Article producers		
Other chemical manufacturers or processors		
Exporters		
Other (specify)		

6.05 Substitutes -- List all known commercially feasible substitutes that you know exist for the listed substance and state the cost of each substitute. A commercially feasible substitute is one which is economically and technologically feasible to use in your current operation, and which results in a final product with comparable performance in its end uses.

CBI

☐

<u>Substitute</u>	<u>Cost (\$/kg)</u>
UK	

☐ Mark (X) this box if you attach a continuation sheet.

6.06 State your average total and variable costs of manufacturing, importing, and processing the listed substance during the reporting year. (For an explanation of these costs, refer to the instructions.)

☐

Average Total Costs

Manufacturing \$/kg

Importing \$/kg

Processing \$/kg

Average Variable Costs

Manufacturing \$/kg

Importing \$/kg

Processing \$/kg

6.07 State your average purchase price of the listed substance, if purchased as a raw material during the reporting year.

CBI

☐ Average purchase price \$/kg

6.08 State your company's total sales and sales of the listed substance sold in bulk for the reporting year.

CBI

☐ Year ending ☐ ☐ ☐ ☐
Mo. Year

Company's total sales (\$)

Sales of listed substance (\$)

☐ Mark (X) this box if you attach a continuation sheet.

6.09 State your company's total sales and sales of the listed substance sold in bulk for
CBI the corporate fiscal year preceding the reporting year. (Refer to the instructions
for question 6.08 for the methodology used to answer this question.)

☐

Year ending
Mo. Year

Company's total sales (\$)

Sales of listed substance (\$)

6.10 State your company's total sales and sales of the listed substance sold in bulk for
CBI the 2 corporate fiscal years preceding the reporting year in descending order.
(Refer to the instructions for question 6.08 for the methodology used to answer this
question.)

☐

Year ending
Mo. Year

Company's total sales (\$)

Sales of listed substance (\$)

Year ending
Mo. Year

Company's total sales (\$)

Sales of listed substance (\$)

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 7 MANUFACTURING AND PROCESSING INFORMATION

General Instructions:

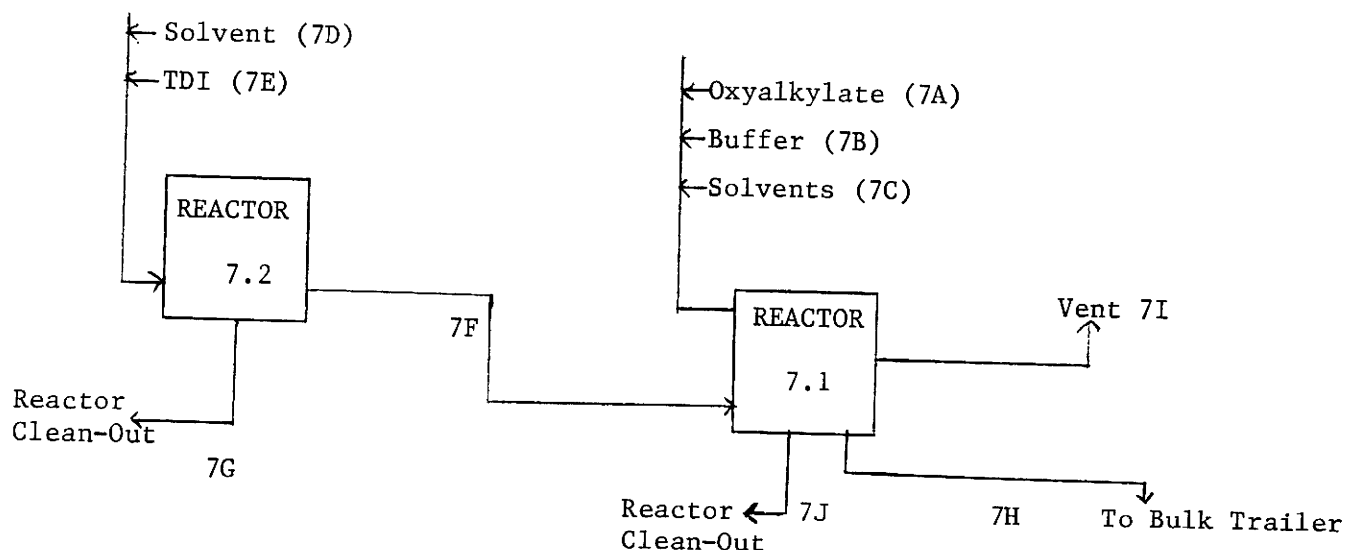
For questions 7.04-7.06, provide a separate response for each process block flow diagram provided in questions 7.01, 7.02, and 7.03. Identify the process type from which the information is extracted.

PART A MANUFACTURING AND PROCESSING PROCESS TYPE DESCRIPTION

7.01 In accordance with the instructions, provide a process block flow diagram showing the major (greatest volume) process type involving the listed substance.

CBI

☐ Process type Polyurethane formation



☐ Mark (X) this box if you attach a continuation sheet.

7.02 In accordance with the instructions, provide a separate process block flow diagram showing each of the three major (greatest volume) process types involving the listed substance.

CBI

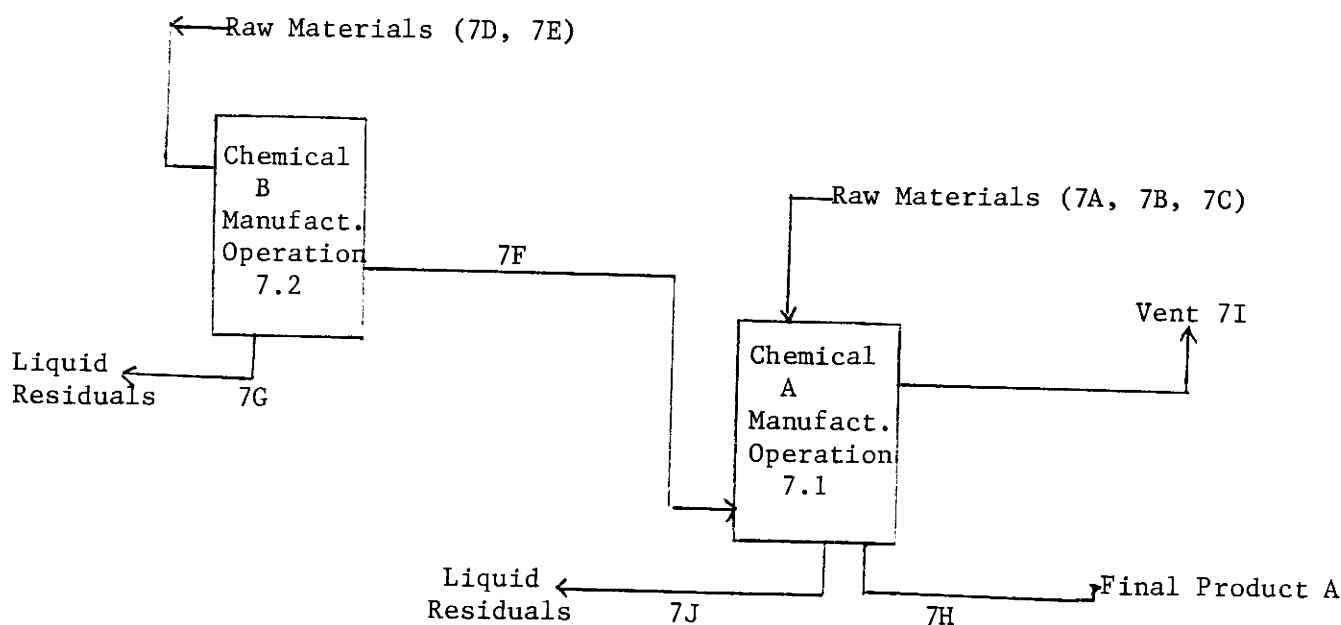
☐ Process type 

☐ Mark (X) this box if you attach a continuation sheet.

7.03 In accordance with the instructions, provide a process block flow diagram showing all process emission streams and emission points that contain the listed substance and which, if combined, would total at least 90 percent of all facility emissions if not treated before emission into the environment. If all such emissions are released from one process type, provide a process block flow diagram using the instructions for question 7.01. If all such emissions are released from more than one process type, provide a process block flow diagram showing each process type as a separate block.

CBI

☐ Process type Polyurethane formation



☐ Mark (X) this box if you attach a continuation sheet.

7.04 Describe the typical equipment types for each unit operation identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

☐ Process type Polyurethane formation

Unit Operation ID Number	Typical Equipment Type	Operating Temperature Range (°C)	Operating Pressure Range (mm Hg)	Vessel Composition
7.1	Reactor	to 114°C	20"Hg-20 psig	Stainless Steel
7.2	Reactor	to 40° C	0 - 20 psig	Carbon Steel

☐ Mark (X) this box if you attach a continuation sheet.

7.05 Describe each process stream identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

☐ Process type Polyurethane formation

Process Stream ID Code	Process Stream Description	Physical State ¹	Stream Flow (kg/yr)
7F	Liquid transfer	OL	3926
7G	Reactor wash water	AL (No Residual TDI)	0
7H	Product load-out	OL	0
7I	Vent to scrubber	GC (No Residual TDI)	0
7J	Reactor wash water	AL (No Residual TDI)	0

¹Use the following codes to designate the physical state for each process stream:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure)
 SO = Solid
 SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

☐ Mark (X) this box if you attach a continuation sheet.

7.06 Characterize each process stream identified in your process block flow diagram(s).
 If a process block flow diagram is provided for more than one process type, photocopy
 this question and complete it separately for each process type. (Refer to the
 CBI instructions for further explanation and an example.)

☐ Process type Polyurethane formation

a.	b.	c.	d.	e.
Process Stream ID Code	Known Compounds ¹	Concen- trations ^{2,3} (% or ppm)	Other Expected Compounds	Estimated Concentrations (% or ppm)
7F	TDI	50% E, W		
	Solvent	50%		

7.06 continued below

☐ Mark (X) this box if you attach a continuation sheet.

7.06 (continued)

¹For each additive package introduced into a process stream, specify the compounds that are present in each additive package, and the concentration of each component. Assign an additive package number to each additive package and list this number in column b. (Refer to the instructions for further explanation and an example. Refer to the glossary for the definition of additive package.)

Additive Package Number	Components of Additive Package	Concentrations (% or ppm)
1	NA	NA
2		
3		
4		
5		

²Use the following codes to designate how the concentration was determined:

A = Analytical result

E = Engineering judgement/calculation

³Use the following codes to designate how the concentration was measured:

V = Volume

W = Weight

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 8 RESIDUAL TREATMENT GENERATION, CHARACTERIZATION, TRANSPORTATION, AND
MANAGEMENT

General Instructions:

For questions 8.04-8.06, provide a separate response for each residual treatment block flow diagram provided in question 8.01, 8.02 or 8.03. Identify the process type from which the information is extracted.

For questions 8.05-8.33, the Stream Identification Codes are those process streams listed in either the Section 7 or Section 8 block flow diagrams which contain residuals for each applicable waste management method.

For questions 8.07-8.33, if residuals are combined before they are handled, list those Stream Identification Codes on the same line.

Questions 8.09-8.33 refer to the waste management activities involving the residuals identified in either the Section 7 or Section 8 block flow diagrams. Not all Stream Identification Codes used in the sample answers (e.g., for the incinerator questions) have corresponding process streams identified in the block flow diagram(s). These Stream Identification codes are for illustrative purposes only.

For questions 8.11-8.33, if you have provided the information requested on one of the EPA Office of Solid Waste surveys listed below within the three years prior to your reporting year, you may submit a copy or reasonable facsimile in lieu of answering those questions which the survey addresses. The applicable surveys are: (1) Hazardous Waste Treatment, Storage, Disposal, and Recycling Survey; (2) Hazardous Waste Generator Survey; or (3) Subtitle D Industrial Facility Mail Survey.

☐ Mark (X) this box if you attach a continuation sheet.

PART A RESIDUAL TREATMENT PROCESS DESCRIPTION

8.01 In accordance with the instructions, provide a residual treatment block flow diagram which describes the treatment process used for residuals identified in question 7.01.

CBI

☐ Process type Polyurethane formation

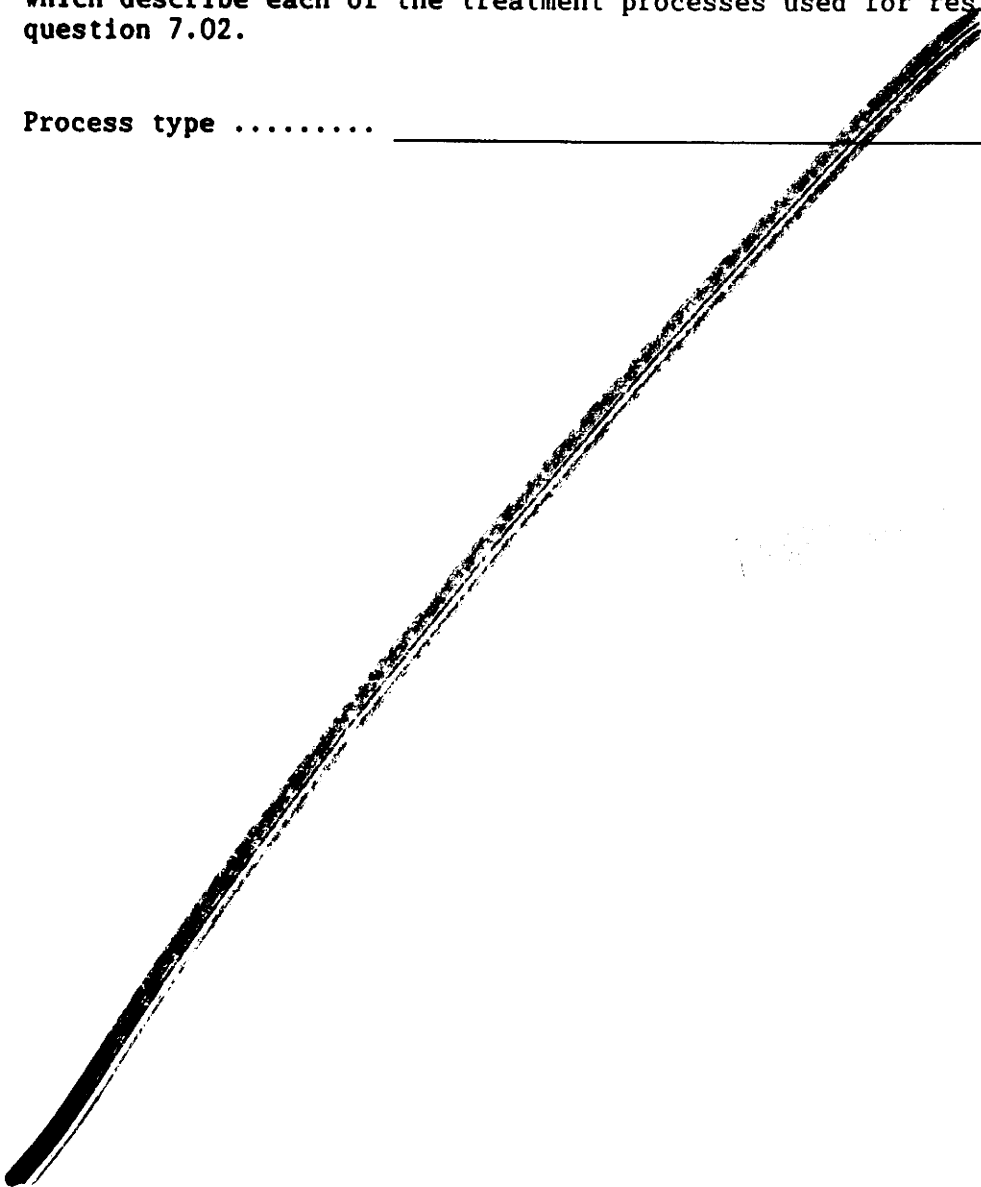
NA

☐ Mark (X) this box if you attach a continuation sheet.

8.02 In accordance with the instructions, provide residual treatment block flow diagram(s) which describe each of the treatment processes used for residuals identified in question 7.02.

CBI

☐ Process type

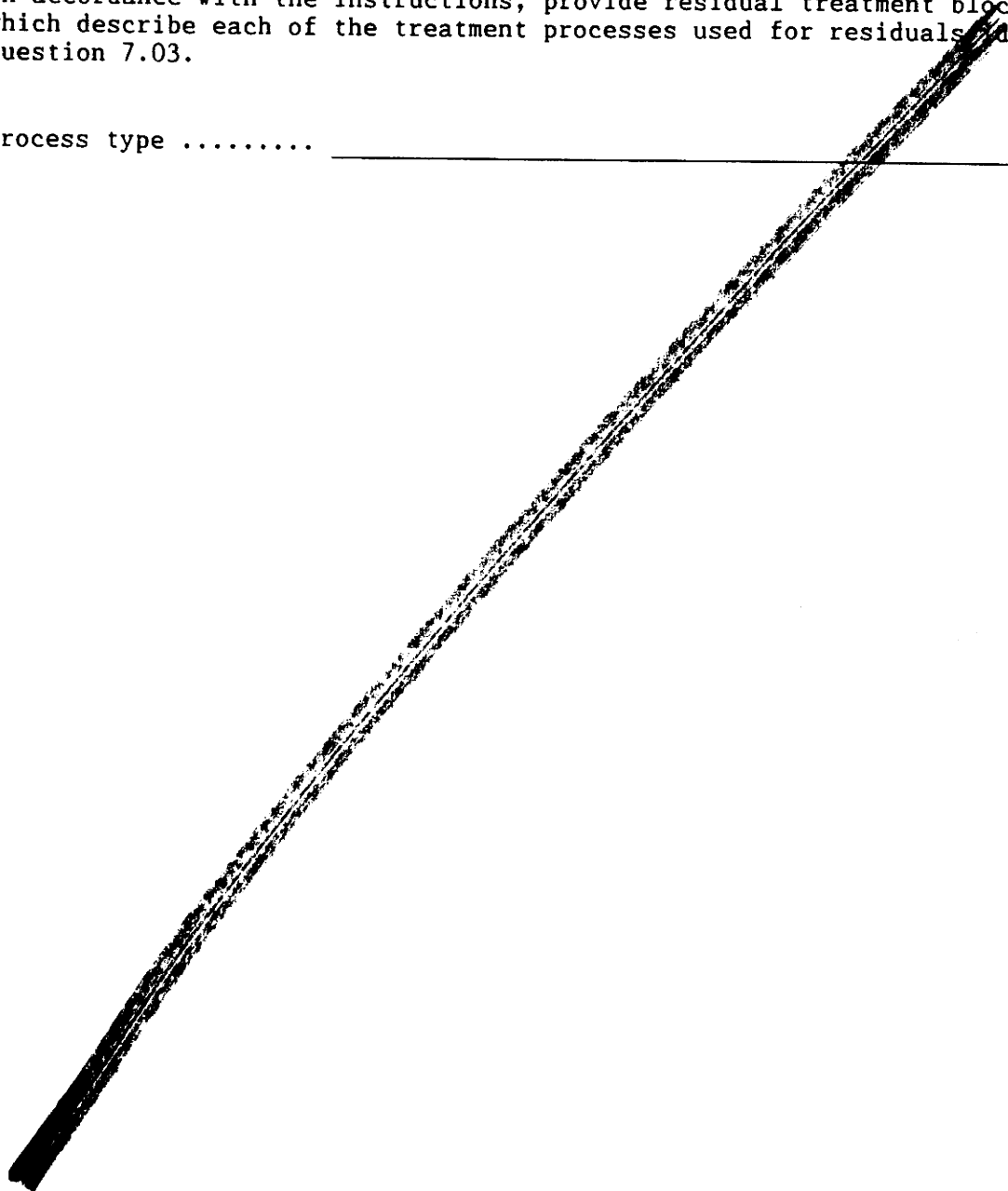


☐ Mark (X) this box if you attach a continuation sheet.

8.03 In accordance with the instructions, provide residual treatment block flow diagram(s) which describe each of the treatment processes used for residuals identified in question 7.03.

CBI

☐ Process type



☐ Mark (X) this box if you attach a continuation sheet.

8.04 Describe the typical equipment types for each unit operation identified in your residual treatment block flow diagram(s). If a residual treatment block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

☐ Process type _____

Unit Operation ID Number
(as assigned in questions
8.01, 8.02, or 8.03)

Typical Equipment Type

☐ Mark (X) this box if you attach a continuation sheet.

PART B RESIDUAL GENERATION AND CHARACTERIZATION

8.05 Characterize each process stream identified in your residual treatment block flow diagram(s). If a residual treatment block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the instructions for further explanation and an example.)

CBI

[] Process type Polyurethane formation

[illegible]

8.05 continued below

☐ Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

¹Use the following codes to designate the type of hazardous waste:

I = Ignitable
C = Corrosive
R = Reactive
E = EP toxic
T = Toxic
H = Acutely hazardous

²Use the following codes to designate the physical state of the residual:

GC = Gas (condensable at ambient temperature and pressure)
GU = Gas (uncondensable at ambient temperature and pressure)
SO = Solid
SY = Sludge or slurry
AL = Aqueous liquid
OL = Organic liquid
IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

8.05 continued below

☐ Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

³For each additive package introduced into a process stream, specify the compounds that are present in each additive package, and the concentration of each component. Assign an additive package number to each additive package and list this number in column d. (Refer to the instructions for further explanation and an example. Refer to the glossary for the definition of additive package.)

Additive Package Number	Components of Additive Package	Concentrations (% or ppm)
<u>1</u>	<u>NA</u>	<u>NA</u>
<u>2</u>		
<u>3</u>		
<u>4</u>		
<u>5</u>		

⁴Use the following codes to designate how the concentration was determined:

A = Analytical result

E = Engineering judgement/calculation

8.05 continued below

☐ Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

⁵Use the following codes to designate how the concentration was measured:

V = Volume
W = Weight.

⁶Specify the analytical test methods used and their detection limits in the table below. Assign a code to each test method used and list those codes in column e.

<u>Code</u>	<u>Method</u>	<u>Detection Limit</u> <u>(± ug/l)</u>
<u>1</u>	NA	NA
<u>2</u>		
<u>3</u>		
<u>4</u>		
<u>5</u>		
<u>6</u>		

☐ Mark (X) this box if you attach a continuation sheet.

CBI

[illegible]

²Use the codes provided in Exhibit 8-2 to designate the management methods

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WASTE DESCRIPTION CODES

These waste description codes were developed specifically for this survey to supplement the descriptions listed with the RCRA and other waste codes. (These waste description codes are not regulatory definitions.)

WASTE DESCRIPTION CODES FOR HAZARDOUS WASTE DESCRIBED BY A SINGLE RCRA F, K, P, OR U WASTE CODE

A01 Spent solvent (F001-F005, K086)
A02 Other organic liquid (F001-F005, K086)
A03 Still bottom (F001-F005, K086)
A04 Other organic sludge (F001-F005, K086)
A05 Wastewater or aqueous mixture

A06 Contaminated soil or cleanup residue
A07 Other F or K waste, exactly as described
A08 Concentrated off-spec or discarded product
A09 Empty containers

A10 Incinerator ash
A11 Solidified treatment residue
A12 Other treatment residue (specify in "Facility Notes")
A13 Other untreated waste (specify in "Facility Notes")

"Exactly as described" means that the waste matches the description of the RCRA waste code.

INORGANIC LIQUIDS—Waste that is primarily inorganic and highly fluid (e.g., aqueous), with low suspended inorganic solids and low organic content.

B01 Aqueous waste with low solvents
B02 Aqueous waste with low other toxic organics
B03 Spent acid with metals
B04 Spent acid without metals
B05 Acidic aqueous waste
B06 Caustic solution with metals but no cyanides
B07 Caustic solution with metals and cyanides
B08 Caustic solution with cyanides but no metals
B09 Spent caustic
B10 Caustic aqueous waste
B11 Aqueous waste with reactive sulfides
B12 Aqueous waste with other reactives (e.g., explosives)
B13 Other aqueous waste with high dissolved solids
B14 Other aqueous waste with low dissolved solids
B15 Scrubber water
B16 Leachate
B17 Waste liquid mercury
B18 Other inorganic liquid (specify in "Facility Notes")

INORGANIC SLUDGES—Waste that is primarily inorganic, with moderate-to-high water content and low organic content; pumpable.

B19 Lime sludge without metals
B20 Lime sludge with metals/metal hydroxide sludge
B21 Wastewater treatment sludge with toxic organics
B22 Other wastewater treatment sludge
B23 Untreated plating sludge without cyanides
B24 Untreated plating sludge with cyanides
B25 Other sludge with cyanides
B26 Sludge with reactive sulfides
B27 Sludge with other reactives
B28 Degreasing sludge with metal scale or filings
B29 Air pollution control device sludge (e.g., fly ash, wet scrubber sludge)
B30 Sediment or lagoon dragout contaminated with organics
B31 Sediment or lagoon dragout contaminated with inorganics only

B32 Drilling mud
B33 Asbestos slurry or sludge
B34 Chloride or other brine sludge
B35 Other inorganic sludge (specify in "Facility Notes")

INORGANIC SOLIDS—Waste that is primarily inorganic and solid, with low organic content and low-to-moderate water content; not pumpable.

B36 Soil contaminated with organics
B37 Soil contaminated with inorganics only
B38 Ash, slag, or other residue from incineration of wastes
B39 Other "dry" ash, slag, or thermal residue
B40 "Dry" lime or metal hydroxide solids chemically "fixed"
B41 "Dry" lime or metal hydroxide solids not "fixed"
B42 Metal scale, filings, or scrap
B43 Empty or crushed metal drums or containers
B44 Batteries or battery parts, casings, cores
B45 Spent solid filters or adsorbents
B46 Asbestos solids and debris
B47 Metal-cyanide salts/chemicals
B48 Reactive cyanide salts/chemicals
B49 Reactive sulfide salts/chemicals
B50 Other reactive salts/chemicals
B51 Other metal salts/chemicals
B52 Other waste inorganic chemicals
B53 Lab packs of old chemicals only
B54 Lab packs of debris only
B55 Mixed lab packs
B56 Other inorganic solids (specify in "Facility Notes")

INORGANIC GASES—Waste that is primarily inorganic with a low organic content and is a gas at atmospheric pressure.

B57 Inorganic gases

ORGANIC LIQUIDS—Waste that is primarily organic and is highly fluid, with low inorganic solids content and low-to-moderate water content.

B58 Concentrated solvent-water solution
B59 Halogenated (e.g., chlorinated) solvent
B60 Nonhalogenated solvent

B61 Halogenated/nonhalogenated solvent mixture
B62 Oil-water emulsion or mixture
B63 Waste oil
B64 Concentrated aqueous solution of other organics
B65 Concentrated phenolics
B66 Organic paint, ink, lacquer, or varnish
B67 Adhesives or epoxies
B68 Paint thinner or petroleum distillates
B69 Reactive or polymerizable organic liquid
B70 Other organic liquid (specify in "Facility Notes")

ORGANIC SLUDGES—Waste that is primarily organic, with low-to-moderate inorganic solids content and water content; pumpable.

B71 Still bottoms of halogenated (e.g., chlorinated) solvents or other organic liquids
B72 Still bottoms of nonhalogenated solvents or other organic liquids
B73 Only sludge
B74 Organic paint or ink sludge
B75 Reactive or polymerizable organics
B76 Resins, tars, or tarry sludge
B77 Biological treatment sludge
B78 Sewage or other untreated biological sludge
B79 Other organic sludge (specify in "Facility Notes")

ORGANIC SOLIDS—Waste that is primarily organic and solid, with low-to-moderate inorganic content and water content; not pumpable.

B80 Halogenated pesticide solid
B81 Nonhalogenated pesticide solid
B82 Solid resins or polymerized organics
B83 Spent carbon
B84 Reactive organic solid
B85 Empty fiber or plastic containers
B86 Lab packs of old chemicals only
B87 Lab packs of debris only
B88 Mixed lab packs
B89 Other halogenated organic solid
B90 Other nonhalogenated organic solid

ORGANIC GASES—Waste that is primarily organic with low-to-moderate inorganic content and is a gas at atmospheric pressure.

B91 Organic gases

MANAGEMENT METHODS

- M1 = Discharge to publicly owned wastewater treatment works
M2 = Discharge to surface water under NPDES
M3 = Discharge to off-site, privately owned wastewater treatment works
M4 = Scrubber: a) caustic; b) water; c) other
M5 = Vent to: a) atmosphere; b) flare; c) other (specify) _____
M6 = Other (specify) _____

TREATMENT AND RECYCLING

Incineration/thermal treatment

- 1I Liquid injection
2I Rotary or rocking kiln
3I Rotary kiln with a liquid injection unit
4I Two stage
5I Fixed hearth
6I Multiple hearth
7I Fluidized bed
8I Infrared
9I Fume/vapor
10I Pyrolytic destructor
11I Other incineration/thermal treatment

Reuse as fuel

- 1RF Cement kiln
2RF Aggregate kiln
3RF Asphalt kiln
4RF Other kiln
5RF Blast furnace
6RF Sulfur recovery furnace
7RF Smelting, melting, or refining furnace
8RF Coke oven
9RF Other industrial furnace
10RF Industrial boiler
11RF Utility boiler
12RF Process heater
13RF Other reuse as fuel unit

Fuel Blending

- 1FB Fuel blending

Solidification

- 1S Cement or cement/silicate processes
2S Pozzolan processes
3S Asphaltic processes
4S Thermoplastic techniques
5S Organic polymer techniques
6S Jacketing (macro-encapsulation)
7S Other solidification

Recovery of solvents and liquid organics for reuse

- 1SR Fractionation
2SR Batch still distillation
3SR Solvent extraction
4SR Thin-film evaporation
5SR Filtration
6SR Phase separation
7SR Dessication
8SR Other solvent recovery

Recovery of metals

- 1MR Activated carbon (for metals recovery)
2MR Electrodialysis (for metals recovery)
3MR Electrolytic metal recovery
4MR Ion exchange (for metals recovery)
5MR Reverse osmosis (for metals recovery)
6MR Solvent extraction (for metals recovery)
7MR Ultrafiltration (for metals recovery)
8MR Other metals recovery

Wastewater Treatment

After each wastewater treatment type listed below (1WT - 66WT) specify a) tank; or b) surface impoundment (i.e., 63WTA)

Equalization

- 1WT Equalization

Cyanide oxidation

- 2WT Alkaline chlorination
3WT Ozone
4WT Electrochemical
5WT Other cyanide oxidation

General oxidation (including disinfection)

- 6WT Chlorination
7WT Ozonation
8WT UV radiation
9WT Other general oxidation

Chemical precipitation¹

- 10WT Lime
11WT Sodium hydroxide
12WT Soda ash
13WT Sulfide
14WT Other chemical precipitation

Chromium reduction

- 15WT Sodium bisulfite
16WT Sulfur dioxide

EXHIBIT 8-2. (continued)

MANAGEMENT METHODS

17WT Ferrous sulfate
18WT Other chromium reduction

Complexed metals treatment (other than
chemical precipitation by pH adjustment)
19WT Complexed metals treatment

Emulsion breaking
20WT Thermal
21WT Chemical
22WT Other emulsion breaking

Adsorption
23WT Carbon adsorption
24WT Ion exchange
25WT Resin adsorption
26WT Other adsorption

Stripping
27WT Air stripping
28WT Steam stripping
29WT Other stripping

Evaporation
30WT Thermal
31WT Solar
32WT Vapor recompression
33WT Other evaporation

Filtration
34WT Diatomaceous earth
35WT Sand
36WT Multimedia
37WT Other filtration

Sludge dewatering
38WT Gravity thickening
39WT Vacuum filtration
40WT Pressure filtration (belt, plate
and frame, or leaf)
41WT Centrifuge
42WT Other sludge dewatering

Air flotation
43WT Dissolved air flotation
44WT Partial aeration
45WT Air dispersion
46WT Other air flotation

Oil skimming
47WT Gravity separation

48WT Coalescing plate separation
49WT Other oil skimming

Other liquid phase separation
50WT Decanting
51WT Other liquid phase separation

Biological treatment
52WT Activated sludge
53WT Fixed film-trickling filter
54WT Fixed film-rotating contactor
55WT Lagoon or basin, aerated
56WT Lagoon, facultative
57WT Anaerobic
58WT Other biological treatment

Other wastewater treatment
59WT Wet air oxidation
60WT Neutralization
61WT Nitrification
62WT Denitrification
63WT Flocculation and/or coagulation
64WT Settling (clarification)
65WT Reverse osmosis
66WT Other wastewater treatment

OTHER WASTE TREATMENT

1TR Other treatment
2TR Other recovery for reuse

ACCUMULATION

1A Containers
2A Tanks

STORAGE

1ST Container (i.e., barrel, drum)
2ST Tank
3ST Waste pile
4ST Surface impoundment
5ST Other storage

DISPOSAL

1D Landfill
2D Land treatment
3D Surface impoundment (to be closed
as a landfill)
4D Underground injection well

¹Chemical precipitation is a treatment operation whereby the pH of a waste is adjusted to the range necessary for removal (precipitation) of contaminants. However, if the pH is adjusted solely to achieve a neutral pH, THE OPERATION SHOULD BE CONSIDERED NEUTRALIZATION (60WT).

PART C TRANSPORTATION OF RESIDUALS TO OFF-SITE FACILITIES

8.07 Identify any special handling instructions for the residuals identified in your process block or residual treatment block flow diagram(s). (Refer to the instructions for an example.)

CBI

☐

<u>Stream ID Code</u>	<u>Special Handling Instructions</u>

8.08 Identify those construction materials that are recommended (compatible) for containing or transporting the listed substance, and those materials that you know could cause a dangerous reaction or significant corrosion (incompatible) if they are used to contain or transport the listed substance.

CBI

☐

<u>Stream ID Code</u>	<u>Construction Materials</u>	
	<u>Compatible Containment Materials</u>	<u>Incompatible Containment Materials</u>

☐ Mark (X) this box if you attach a continuation sheet.

8.09 Identify each off-site facility (including POTWs) that manages the residuals identified in your process block or residual treatment block flow diagram(s), and the quantity that each managed during the reporting year. Photocopy this question and complete it separately for each off-site facility.

CBI
☐

<u>Stream ID Code</u>	<u>Annual Quantity (kg)</u>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

Facility Name

Address
Street

City

State Zip Code

EPA Identification Number (i.e., Hazardous Waste Facility ID Number)

☐ Mark (X) this box if you attach a continuation sheet.

PART D ON-SITE RESIDUALS MANAGEMENT INFORMATION

8.10 Identification Permit Numbers -- List any applicable identification or permit numbers for your facility.

EPA National Pollutant Discharge Elimination System
(NPDES) Permit No.(s)
(discharges to surface water)

EPA Underground Injection Well
(UIC) Permit No.(s)
(underground injection of fluids)

EPA Point Source Discharge
(PSD) Permit No.(s)
(air emissions from point sources)

EPA Hazardous Waste Management
Facility Permit No.(s)

Other EPA Permits (specify)

.....
.....
.....

☐ Mark (X) this box if you attach a continuation sheet.

8.11 On-Site Storage or Treatment in Piles -- Complete this table for the five largest (by volume) piles that are used on-site to store or treat the residuals identified in your process block or residual treatment block flow diagram(s).

☐

Pile	Quantity Managed per Year (cubic meters)	Under Roofed Structure (Y/N)	Type of Contain- ment Provided ¹	Synthetic Liner Base (Y/N) ²	Frequency of Transfer and/or Handling Operations ³	Stream ID Code
1						
2						
3						
4						
5						

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹Use the following codes to designate the type of containment provided:

C = Complete (includes both dike containment and underground (leachate) containment)

P1 = Partial-1 (includes just dike containment)

P2 = Partial-2 (includes just underground (leachate) containment)

N = None

²Waste may lie directly on the synthetic liner or the liner may be covered with a clay layer

³Use the following codes to designate frequency of transfer and/or handling operations:

A = Daily

B = Weekly

C = Monthly

D = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

8.12 On-Site Storage or Treatment in Tanks -- Complete the following table for the five largest (by volume) tanks that are used on-site to store or treat the residuals identified in your process block or residual CBI treatment block flow diagram(s).

☐

Tank	Design Capacity (liters)	Quantity per Year (liters)	Treatment Types ¹	Average Length of Storage (days)	Part of Wastewater Treatment Train (Y/N) ²	Tank Covered (Y/N)	Type of Containment Provided ³	Stream ID Code
1								
2								
3								
4								
5								

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹Indicate "S" for storage or use the codes provided in Exhibit 8-3 (which follows question 8.13) to designate treatment types

²Treatment train from which wastewater is discharged under a NPDES permit or through a sewer system to a publicly owned treatment works

³Use the following codes to designate the type of containment provided:

C = Complete (includes both dike containment and underground (leachate) containment)
 P1 = Partial-1 (includes just dike containment)
 P2 = Partial-2 (includes just underground (leachate) containment)
 N = None

☐ Mark (X) this box if you attach a continuation sheet.

8.13 On-Site Storage, Treatment, or Disposal in Containers -- Complete the following table for the five largest (by volume) types of free standing containers that are used on-site to store, treat, or dispose of the residuals identified in your process block or residual treatment block flow diagram(s).

☐

Container	Design Capacity (liters)	Quantity Stored per Year (liters)	Treat- ment Types ¹	Average Length of Storage (days)	Average Daily Stored Quantity (liters)	Maximum Operational Storage Capacity (liters)	Storage Base Material ²	Stream ID Code
1								
2								
3								
4								
5								

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹Indicate "S" for storage and use the codes provided in Exhibit 8-3 to designate treatment types

If residual is stored, indicate (Y/N) in parenthesis whether the storage area is designed and operated to collect and contain surface runoff

²Use the following codes to designate storage base materials:

A = Concrete

B = Asphalt

C = Soil

D = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

EXHIBIT 8-3
[REFERS TO QUESTIONS 8.12, 8.13, AND 8.29]

WASTEWATER TREATMENT TYPES

WASTEWATER TREATMENT

Equalization

1WT Equalization

Cyanide oxidation

2WT Alkaline chlorination

3WT Ozone

4WT Electrochemical

5WT Other cyanide oxidation

General oxidation (including disinfection)

6WT Chlorination

7WT Ozonation

8WT UV Radiation

9WT Other general oxidation

Chemical Precipitation¹

10WT Lime

11WT Sodium hydroxide

12WT Soda ash

13WT Sulfide

14WT Other chemical precipitation

Chromium reduction

15WT Sodium bisulfite

16WT Sulfur dioxide

17WT Ferrous sulfate

18WT Other chromium reduction

Complexed metals treatment (other than chemical precipitation by pH adjustment)

19WT Complexed metals treatment

Emulsion breaking

20WT Thermal

21WT Chemical

22WT Other emulsion breaking

Adsorption

23WT Carbon adsorption

24WT Ion exchange

25WT Resin adsorption

26WT Other adsorption

Stripping

27WT Air stripping

28WT Steam stripping

29WT Other stripping

Evaporation

30WT Thermal

31WT Solar

32WT Vapor recompression

33WT Other evaporation

Filtration

34WT Diatomaceous earth

35WT Sand

36WT Multimedia

37WT Other filtration

Sludge dewatering

38WT Gravity thickening

39WT Vacuum filtration

40WT Pressure filtration (belt, plate and frame, or leaf)

41WT Centrifuge

42WT Other sludge dewatering

Air flotation

43WT Dissolved air flotation

44WT Partial aeration

45WT Air dispersion

46WT Other air flotation

Oil skimming

47WT Gravity separation

48WT Coalescing plate separation

49WT Other oil skimming

Other liquid phase separation

50WT Decanting

51WT Other liquid phase separation

Biological treatment

52WT Activated sludge

53WT Fixed film--trickling filter

54WT Fixed film--rotating contactor

55WT Lagoon or basin, aerated

56WT Lagoon, facultative

57WT Anaerobic

58WT Other biological treatment

Other wastewater treatment

59WT Wet air oxidation

60WT Neutralization

61WT Nitrification

62WT Denitrification

63WT Flocculation and/or coagulation

64WT Settling (clarification)

65WT Reverse osmosis

66WT Other wastewater treatment

¹ Chemical precipitation is a treatment operation whereby the pH of a waste is adjusted to the range necessary for removal (precipitation) of contaminants. However, if the pH is adjusted solely to achieve a neutral pH, THE OPERATION SHOULD BE CONSIDERED NEUTRALIZATION (60WT).

8.14 On-Site Burning in Boilers -- Complete the following table for the five largest (by capacity) boilers that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

☐

Boiler	Boiler Type ¹	Average Boiler Load ² (%)	Average Fuel Replacement Ratio ³ (%)	Stream ID Code
1				
2				
3				
4				
5				

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹Use the following codes to designate boiler type:

F = Fire tube
W = Water tube

²Designate the average boiler load when firing residual (percent of capacity)

³Designate the average fuel replacement ratio as a percentage (heat-input basis)

☐ Mark (X) this box if you attach a continuation sheet.

8.15 Complete the following table for the five largest (by capacity) boilers that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

CBI

☐

Boiler	Boiler Heat Capacity (heat input in kJ/hr)	Primary Boiler Fuel ¹
1		
2		
3		
4		
5		

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹Use the following codes to designate the primary boiler fuel:

A = Oil
B = Gas
C = Coal

D = Wood
E = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

8.16 Provide the following information for the residuals identified in your process block or residual treatment block flow diagram(s) that are burned in on-site boilers. Photocopy this question and complete it separately for each boiler.

CBI

☐ Boiler number

Stream ID code(s)

	Residual, as Fired (or residual mixture if residuals are blended)	Boiler Fuel, as Fired (residual(s) plus primary fuel)
Btu content (J/kg)		
Average		
Minimum		
Total halogen content (% by wt.)		
Average		
Maximum		

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

☐ Mark (X) this box if you attach a continuation sheet.

8.17 Complete the following table for the five largest (by capacity) boilers that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

CBI

☐

Boiler	Stream ID Code	Listed Metal ¹	Total Metal Content (% by weight)	
			Avg.	Max.
1				
2				
3				
4				
5				

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

- Yes 1
- No 2

A listed metal is either an EP toxic metal or a metal that is included on the California List (as defined in section 3004(d)(2) of the Resource Conservation and Recovery Act)

☐ Mark (X) this box if you attach a continuation sheet.

8.18 Complete the following table for the five largest (by capacity) boilers that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

CBI

[]

Boiler	Air Pollution Control Device ¹	Types of Emissions Data Available
1		
2		
3		
4		
5		

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹Use the following codes to designate the air pollution control device:

S = Scrubber (include type of scrubber in parenthesis)

E = Electrostatic precipitator

O = Other (specify) _____

[] Mark (X) this box if you attach a continuation sheet.

8.19 Stack Parameters -- Provide the following information for each of the five largest (by capacity) boilers that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s). Photocopy this question and complete it separately for each boiler.

☐ Boiler number
Stack height m
Stack inner diameter (at outlet) m
Exhaust temperature °C
Vertical or horizontal stack (V or H)
Annual emissions for the listed substance kg/yr
Height of attached or adjacent building m
Width of attached or adjacent building m
Building cross-sectional area m²
Emission exit velocity m/sec
Average emission rate of exit stream kg/min
Maximum emission rate of exit stream kg/min
Average duration of maximum emission rate of exit stream min
Frequency of maximum emission rate of exit stream times/year

Indicate if office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

☐ Mark (X) this box if you attach a continuation sheet.

8.20 On-Site Burning in Incinerators -- Complete the following table for the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

☐

Incinerator	Incinerator Type ¹	Primary Incinerator Fuel ²	Average Fuel Replacement Ratio ³	Stream ID Code
1				
2				
3				

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹Use the following codes to designate the incinerator type:

1I = Liquid injection
 2I = Rotary or rocking kiln
 3I = Rotary kiln with a liquid injection unit
 4I = Two stage
 5I = Fixed hearth

6I = Multiple hearth
 7I = Fluidized bed
 8I = Infrared
 9I = Fume/vapor
 10I = Pyrolytic destructor
 11I = Other (specify) _____

²Use the following codes to designate the primary incinerator fuel:

A = Oil
 B = Gas
 C = Coal

D = Wood
 E = Other (specify) _____

³Designate the percentage of auxiliary fuel used when firing residual (percent of capacity)

☐ Mark (X) this box if you attach a continuation sheet.

8.21 Complete the following table for the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual CBI treatment block flow diagram(s).

[]

<u>Incinerator</u>	<u>Incinerator Heat Capacity (heat input in kJ/hr)</u>	<u>Feed Type¹</u>
<u>1</u>	<u></u>	<u></u>
<u>2</u>	<u></u>	<u></u>
<u>3</u>	<u></u>	<u></u>

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹Use the following codes to designate feed type:

A = Liquid nozzle type (specify) _____

B = Atomizing pressure (specify) _____

C = Solid-batch charge

D = Solid-continuous charge

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[] Mark (X) this box if you attach a continuation sheet.

8.22 Describe the combustion chamber design parameters for each of the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in CBI your process block or residual treatment block flow diagram(s).

☐

Incinerator	Combustion Chamber Temperature (°C)		Location of Temperature Monitor		Residence Time In Combustion Chamber (seconds)	
	Primary	Secondary	Primary	Secondary	Primary	Secondary
1						
2						
3						

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1
 No 2

8.23 Complete the following table for the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual CBI treatment block flow diagram(s).

☐

Incinerator	Air Pollution Control Device ¹	Types of Emissions Data Available
1	NA	NA
2	NA	NA
3	NA	NA

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1
 No 2

¹Use the following codes to designate the air pollution control device:

S = Scrubber (include type of scrubber in parenthesis)

E = Electrostatic precipitator

O = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

8.24 Stack Parameters -- Provide the following information on stack parameters for the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).
CBI Photocopy this question and complete it separately for each incinerator.

☐ Incinerator number
Stack height m
Stack inner diameter (at outlet) m
Exhaust temperature °C
Vertical or horizontal stack (V or H)
Annual emissions for the listed substance kg/yr
Height of attached or adjacent building m
Width of attached or adjacent building m
Building cross-sectional area m²
Emission exit velocity m/sec
Average emission rate of exit stream kg/min
Maximum emission rate of exit stream kg/min
Average duration of maximum emission rate of exit stream min
Frequency of maximum emission rate of exit stream times/year

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1
No 2

☐ Mark (X) this box if you attach a continuation sheet.

8.25 Provide the following information on the incinerator feed for the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s). Photocopy this question and complete it separately for each incinerator.

CBI

☐ Incinerator number
Stream ID code(s)

	Residual, as Fired (or residual mixture if residuals are blended)	Incinerator Fuel, as Fired (residual(s) plus primary fuel)
Btu content (J/kg)		
Average	_____	_____
Minimum	_____	_____
Feed rate (kg/hr)	_____	_____
Feed rate (J/hr)(kg/hr x J/kg)	_____	_____
Total halogen content (% by weight)		
Average	_____	_____
Maximum	_____	_____
Total ash content (% by weight)		
Average	_____	_____
Maximum	_____	_____
Total water content (% by weight)		
Average	_____	_____
Maximum	_____	_____

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

☐ Mark (X) this box if you attach a continuation sheet.

8.26 Provide the following information on the incinerator feed for the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your CBI process block or residual treatment block flow diagram(s).

☐

Incinerator	Stream ID Code	Listed Metal ¹	Total Metal Content (% by weight)	
			Avg.	Max.
1				
2				
3				

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹ A listed metal is either an EP toxic metal or a metal that is included on the California List (as defined in section 3004(d)(2) of the Resource Conservation and Recovery Act)

☐ Mark (X) this box if you attach a continuation sheet.

8.27 On-Site Storage, Treatment or Disposal in a Land Treatment Site -- Complete the following table for each on-site land treatment site that is used to store, treat, or dispose of the residuals identified in your process block or residual treatment block flow diagram(s).

☐ Total area actively used for land treatment m²
Average slope of site (degree incline)
Surface water runoff management¹
Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.
Yes 1
No 2

¹Use the following codes to describe the management practices for surface water runoff:

A = Collection prior to treatment
B = Reapplication to the site

C = Canalization prior to treatment
D = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

8.28 Complete the following table for the residuals identified in your process block or residual treatment block flow diagram(s) that are managed in an on-site land treatment operation.

CBI

☐

Stream ID Code	Year Land Treatment Initiated	Methods Used to Apply Residuals ¹	Application Rate ²
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹Use the following codes to describe the method(s) used to apply residuals to the land treatment site:

- A = Surface spreading or spray irrigation without plow or disc incorporation
- B = Surface spreading or spray irrigation with plow or disc incorporation to a depth of _____ cm
- C = Subsurface injection to a depth of _____ cm
- D = Other (specify) _____

²Use the following codes to designate the application rate:

- A = Daily
- B = Weekly
- C = Monthly
- D = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

8.29 On-Site Storage, Treatment, or Disposal in Surface Impoundments -- Complete the following table for the five largest (by volume) surface impoundments that are used on-site to treat, store, or dispose of the residuals identified in your process block or residual treatment block flow diagram(s).

☐

Impoundment	Capacity (liters)	Specify Storage, Disposal or Treatment Type if applicable ¹	Average Residency Time (days) ²	SYNTHETIC LINER		CLAY LINER		LEACHATE COLLECTION SYSTEM		Stream ID Code
				No. of Liners	Thickness (cm) ³	No. of Liners	Thickness (cm) ³	Installed (Y/N)	Leachate Collected (Y/N)	
1										
2										
3										
4										
5										

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹Indicate "S" for storage, "D" for disposal, or use the codes provided in Exhibit 8-3 (which follows question 8.13) to designate treatment type

²Indicate the residency time for the surface impoundment's flow through stream. In addition, indicate in parenthesis using the following codes the frequency with which the impoundment is dredged to clear the residue that collects on the bottom:

A = Daily
B = Weekly

C = Monthly
D = Other (specify) _____

³Indicate the thickness of each liner

☐ Mark (X) this box if you attach a continuation sheet.

8.30 On-Site Disposal in Landfill Cells -- Complete the following table for the five largest (by volume) landfill cells that are used on-site to dispose of the residuals identified in your process block or residual treatment block flow diagram(s).

CBI

☐

Landfill Cell	Quantity per year (kg)	DRAINAGE LAYER		CLAY LINER		SYNTHETIC LINER		Stream ID Code
		Installed (Y/N)	Thickness (cm)	No. of Liners	Thickness (cm) ¹	No. of Liners	Material Thickness (cm) ¹	
1								
2								
3								
4								
5								

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹Indicate the thickness of each liner

☐ Mark (X) this box if you attach a continuation sheet.

8.31 State the total area actively used on-site for your landfill.

CBI

☐ Total area actively used m²

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

8.32 Complete the following table for the five largest landfill cells (by volume) that contain residuals identified in your process block or residual treatment block flow diagram(s).

CBI

☐

Landfill Cell	WORKING COVER		CAP DESIGN CLAY LAYER		LEACHATE COLLECTION SYSTEM	
	Average ¹ Use	Thickness (cm)	Installed (Y/N)	Thickness (cm)	Installed (Y/N)	Leachate Collected (Y/N)
1						
2						
3						
4						
5						

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹Use the following codes to designate the average use rate:

A = Daily

B = Weekly

C = Monthly

D = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

8.33 On-Site Disposal in Injection Wells -- Complete the following table for the five largest (by volume) injection wells that are used on-site to dispose of the residuals identified in your process block or residual treatment block flow diagram(s).

CBI

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Well	Well Type ¹	Quantity Disposed (liters) ²	Stream ID Code
1			
2			
3			
4			
5			

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹Use the following codes to designate well type:

- A = Wells that dispose below deepest groundwater with <10,000 mg/l of total dissolved solids
- B = Wells that dispose into a formation containing groundwater with <10,000 mg/l of total dissolved solids
- C = Wells that dispose above all groundwater
- D = Other (specify _____)

²Indicate the quantity of listed substance disposed

[] Mark (X) this box if you attach a continuation sheet.

SECTION 9 WORKER EXPOSURE

General Instructions:

Questions 9.03-9.25 apply only to those processes and workers involved in manufacturing or processing the listed substance. Do not include workers involved in residual waste treatment unless they are involved in this treatment process on a regular basis (i.e., exclude maintenance workers, construction workers, etc.).

☐ Mark (X) this box if you attach a continuation sheet.

PART A EMPLOYMENT AND POTENTIAL EXPOSURE PROFILE

9.01 Mark (X) the appropriate column to indicate whether your company maintains records on the following data elements for hourly and salaried workers. Specify for each data element the year in which you began maintaining records and the number of years the records for that data element are maintained. (Refer to the instructions for further explanation and an example.)

CBI

☐

Data Element	Data are Maintained for:		Year in Which Data Collection Began	Number of Years Records Are Maintained
	Hourly Workers	Salaried Workers		
Date of hire	X	X	1926	>60
Age at hire	X	X	1926	>60
Work history of individual before employment at your facility	X	X	1926	>60
Sex	X	X	1926	>60
Race	X	X	1926	>60
Job titles	X	X	1926	>60
Start date for each job title	X	X	1926	>60
End date for each job title	X	X	1926	>60
Work area industrial hygiene monitoring data for TDI	X	X	1987	30+ duration of employment
Personal employee monitoring data for TDI	X	X	1987	30+ duration of employment
Employee medical history	X	X	1926	>60
Employee smoking history	X	X	1926	>60
Accident history	X	X	1926	>60
Retirement date	X	X	1926	>60
Termination date	X	X	1926	>60
Vital status of retirees	UK	UK	UK	UK
Cause of death data	UK	UK	UK	UK

☐ Mark (X) this box if you attach a continuation sheet.

9.02 In accordance with the instructions, complete the following table for each activity in which you engage.

CBI

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a.	b.	c.	d.	e.
<u>Activity</u>	<u>Process Category</u>	<u>Yearly Quantity (kg)</u>	<u>Total Workers</u>	<u>Total Worker-Hours</u>
Manufacture of the listed substance	Enclosed	NA		
	Controlled Release	NA		
	Open	NA		
On-site use as reactant	Enclosed	2,270	5	9
	Controlled Release	NA		
	Open	NA		
On-site use as nonreactant	Enclosed	NA		
	Controlled Release	NA		
	Open	NA		
On-site preparation of products	Enclosed	NA		
	Controlled Release	NA		
	Open	NA		

☐ Mark (X) this box if you attach a continuation sheet.

9.03 Provide a descriptive job title for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance.

CBI

☐

Labor Category

Descriptive Job Title

A

Senior Chemical Operator

B

Chemical Operator

C

D

E

F

G

H

I

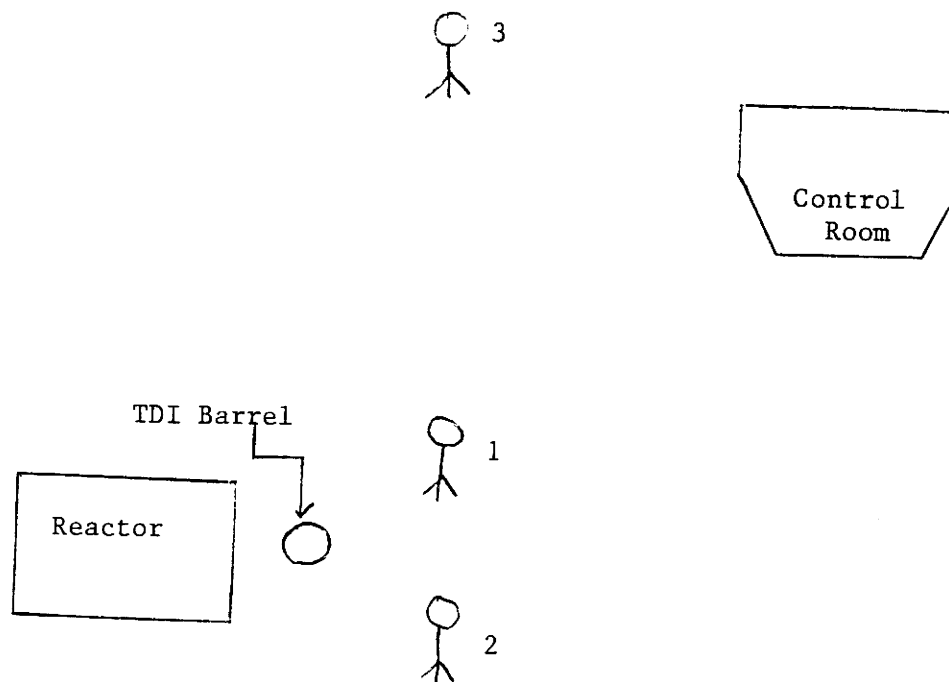
J

☒ Mark (X) this box if you attach a continuation sheet.

9.04 In accordance with the instructions, provide your process block flow diagram(s) and indicate associated work areas.

CBI

☐ Process type Polyurethane formation



☐ Mark (X) this box if you attach a continuation sheet.

9.05 Describe the various work area(s) shown in question 9.04 that encompass workers who may potentially come in contact with or be exposed to the listed substance. Add any additional areas not shown in the process block flow diagram in question 7.01 or 7.02. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type Polyurethane formation

Work Area ID

Description of Work Areas and Worker Activities

* 1	
** 2	
*** 3	
4	
5	
6	
7	
8	
9	
10	

* 1	Senior Chemical Operator - Pull vacuum on reactor in order to remove material from drum and to charge TDI.
** 2	Chemical Operator - Assists Senior Chemical Operator on all start up procedures and checks.
*** 3	Chemical Operator - Operates outside the regulated area to remove empty TDI drums for decontamination and to control entry to area.

☐ Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

☐ Process type Polyurethane formation

Work area 1, 2, 3

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance ¹	Average Length of Exposure Per Day ²	Number of Days per Year Exposed
A, B	3	Inhalation, skin contact	OL	B	6

¹Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensable at ambient temperature and pressure)	SY = Sludge or slurry
GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)	AL = Aqueous liquid
SO = Solid	OL = Organic liquid
	IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

²Use the following codes to designate average length of exposure per day:

A = 15 minutes or less	D = Greater than 2 hours, but not exceeding 4 hours
B = Greater than 15 minutes, but not exceeding 1 hour	E = Greater than 4 hours, but not exceeding 8 hours
C = Greater than one hour, but not exceeding 2 hours	F = Greater than 8 hours

☐ Mark (X) this box if you attach a continuation sheet.

CBI

Work area 1, 2, 3

☐ Mark (X) this box if you attach a continuation sheet.

PART B WORK PLACE MONITORING PROGRAM

9.08 If you monitor worker exposure to the listed substance, complete the following table.

CBI

☐

<u>Sample/Test</u>	<u>Work Area ID</u>	<u>Testing Frequency (per year)</u>	<u>Number of Samples (per test)</u>	<u>Who Samples¹</u>	<u>Analyzed In-House (Y/N)</u>	<u>Number of Years Records Maintained</u>
Personal breathing zone	1, 2	3	4	A	Y	30+ duration of employment
General work area (air)	1, 2	3	4	A	Y	30+ duration of employment
Wipe samples	NA					
Adhesive patches	NA					
Blood samples	1, 2, 3	Done in employee medical evaluation				>60
Urine samples	1, 2, 3	Done in employee medical evaluation				>60
Respiratory samples	1, 2, 3	Done in employee medical evaluation				>60
Allergy tests	NA					
Other (specify)						
Other (specify)						
Other (specify)						

¹Use the following codes to designate who takes the monitoring samples:

A = Plant industrial hygienist

B = Insurance carrier

C = OSHA consultant

D = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

9.09 For each sample type identified in question 9.08, describe the type of sampling and analytical methodology used for each type of sample.

Sample Type	Sampling and Analytical Methodology
General Work Area and Breathing Zone	Passing a sample over chemically impregnated tape and measuring the density.

9.10 If you conduct personal and/or ambient air monitoring for the listed substance, specify the following information for each equipment type used.

CBI

Equipment Type ¹	Detection Limit ²	Manufacturer	Averaging Time (hr)	Model Number
D	0 - 0.02 A	MDA Scientific	.08	3060

¹Use the following codes to designate personal air monitoring equipment types:

- A = Passive dosimeter
- B = Detector tube
- C = Charcoal filtration tube with pump
- D = Other (specify) Automatic Toxic Gas Detector

Use the following codes to designate ambient air monitoring equipment types:

- E = Stationary monitors located within work area
- F = Stationary monitors located within facility
- G = Stationary monitors located at plant boundary
- H = Mobile monitoring equipment (specify)
- I = Other (specify)

²Use the following codes to designate detection limit units:

- A = ppm
- B = Fibers/cubic centimeter (f/cc)
- C = Micrograms/cubic meter (μm^3)

☐ Mark (X) this box if you attach a continuation sheet.

9.11 If you conduct routine medical tests for monitoring the health effects of exposure to the listed substance, specify the type and frequency of the tests.

CBI

☐

Test Description

Frequency
(weekly, monthly, yearly, etc.)

NA

NA

☐ Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Polyurethane formation

Work area 1, 2, 3

<u>Engineering Controls</u>	<u>Used (Y/N)</u>	<u>Year Installed</u>	<u>Upgraded (Y/N)</u>	<u>Year Upgraded</u>
Ventilation:				
Local exhaust	N			
General dilution	Y	1950's	N	NA
Other (specify)				
<u>Enclosed system</u>	Y	1950's	N	NA
Vessel emission controls	N			
Mechanical loading or packaging equipment	Y	1950's	N	NA
Other (specify)				

☐ Mark (X) this box if you attach a continuation sheet.

9.13 Describe all equipment or process modifications you have made within the 3 years prior to the reporting year that have resulted in a reduction of worker exposure to the listed substance. For each equipment or process modification described, state the percentage reduction in exposure that resulted. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Polyurethane formation

Work area 1, 2, 3

Equipment or Process Modification	Reduction in Worker Exposure Per Year (%)
NA	NA

☐ Mark (X) this box if you attach a continuation sheet.

PART D PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

[] Process type Polyurethane formation

Work area 1, 2

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>	
Respirators	<u>Y</u>	Scott Airline Full Face
Safety goggles/glasses	<u>N</u>	
Face shields	<u>N</u>	
Coveralls	<u>Y</u>	Ipco impervious
Bib aprons	<u>N</u>	
Chemical-resistant gloves	<u>Y</u>	
Other (specify)		
<u>Tingly boots - rubber</u>	<u></u>	

Work area 3 uses the following: safety glasses, coveralls, chemical-resistant gloves, hard hat, and safety shoes.

☐ Mark (X) this box if you attach a continuation sheet.

9.15 If workers use respirators when working with the listed substance, specify for each process type, the work areas where the respirators are used, the type of respirators used, the average usage, whether or not the respirators were fit tested, and the type and frequency of the fit tests. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type Polyurethane formation

Work Area	Respirator Type	Average Usage ¹	Fit Tested (Y/N)	Type of Fit Test ²	Frequency of Fit Tests (per year)
1, 2	Scott Airline	B	Y	QL	Annual
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

¹Use the following codes to designate average usage:

A = Daily
 B = Weekly
 C = Monthly
 D = Once a year
 E = Other (specify) _____

²Use the following codes to designate the type of fit test:

QL = Qualitative
 QT = Quantitative

☐ Mark (X) this box if you attach a continuation sheet.

- 9.16 Respirator Maintenance Program -- For each type of respirator used when working with the listed substance, specify the frequency of the maintenance activity, and the person who performs the maintenance activity. Photocopy this question and complete it separately for each respirator type.

Respirator type _____

<u>Respirator Maintenance Activity</u>	<u>Frequency¹</u>	<u>Person Performing Activity²</u>
Cleaning	_____	_____
Inspection	_____	_____
Replacement	_____	_____
Cartridge/Canister	_____	_____
Respirator unit	_____	_____

¹Use the following codes to designate the frequency of maintenance activity:

A = After each use

B = Weekly

C = Other (specify) _____

²Use the following codes to designate who performs the maintenance activity:

A = Plant industrial hygienist

B = Supervisor

C = Foreman

D = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

9.17 Respirator Training Program -- Describe your respirator training and re-training programs for each type of respirator used when working with the listed substance. Photocopy this question and complete it separately for each respirator type.

a.

Respirator type

Type of Training ¹	Number of Workers Trained	Location of Training ²	Length of Training (hrs)	Person Performing Training ³	Frequency ⁴

b.

Respirator type

Type of Re-training ¹	Number of Workers Re-trained	Location of Re-Training ²	Length of Re-Training (hrs)	Person Performing Re-Training ³	Frequency ⁴

¹Use the following codes to designate the type of training or re-training:

E = Emergency
R = Routine

²Use the following codes to designate the location of training or re-training:

A = Outside plant instruction
B = In-house classroom instruction
C = On-the-job
D = Other (specify) _____

³Use the following codes to designate the person who performs the training or re-training:

A = Plant industrial hygienist
B = Supervisor
C = Foreman
D = Other (specify) _____

⁴Use the following codes to designate the frequency of respirator training or re-training:

A = Monthly
B = Fixed monthly
C = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

9.18 For each type of personal protective clothing and safety equipment used when working with the listed substance, indicate whether you have conducted a permeation test on the clothing or equipment for the listed substance.

Clothing and Equipment

Permeation Tests Conducted
(Y/N)

Coveralls

Bib apron

Gloves

Other (specify)

☐ Mark (X) this box if you attach a continuation sheet.

PART E WORK PRACTICES

- 9.19 Describe all of the work practices and administrative controls used to reduce or eliminate worker exposure to the listed substance (e.g., restrict entrance only to authorized workers, mark areas with warning signs, insure worker detection and monitoring practices, provide worker training programs, etc.). Photocopy this question and complete it separately for each process type and work area.

CBI

☐

Process type Polyurethane formation

Work area 1, 2, 3

Regulation and demarcation of area with placards

Worker training and monitoring

-
- 9.20 Indicate (X) how often you perform each housekeeping task used to clean up routine leaks or spills of the listed substance. Photocopy this question and complete it separately for each process type and work area.

Process type Polyurethane formation

Work area 1, 2, 3

<u>Housekeeping Tasks</u>	<u>Less Than Once Per Day</u>	<u>1-2 Times Per Day</u>	<u>3-4 Times Per Day</u>	<u>More Than 4 Times Per Day</u>
Sweeping	NA			
Vacuuming	NA			
Water flushing of floors	X			
Other (specify)				

☐ Mark (X) this box if you attach a continuation sheet.

9.21 Do you have a written medical action plan for responding to routine or emergency exposure to the listed substance?

Routine exposure

Yes 1

No 2

Emergency exposure

Yes 1

No 2

If yes, where are copies of the plan maintained?

Routine exposure: _____

Emergency exposure: _____

9.22 Do you have a written leak and spill cleanup plan that addresses the listed substance? Circle the appropriate response.

Yes (1)

No 2

If yes, where are copies of the plan maintained? Posted in each building

Has this plan been coordinated with state or local government response organizations? Circle the appropriate response.

Yes (1)

No 2

9.23 Who is responsible for monitoring worker safety at your facility? Circle the appropriate response.

Plant safety specialist 1

Insurance carrier 2

OSHA consultant 3

Other (specify) _____ 4

☐ Mark (X) this box if you attach a continuation sheet.

9.24 Who is responsible for safety and health training at your facility? Circle the appropriate response.

Plant safety specialist 1

Insurance carrier 2

OSHA consultant 3

Other (specify) _____ 4

9.25 Who is responsible for the medical program at your facility? Circle the appropriate response.

Plant physician 1

Consulting physician 2

Plant nurse 3

Consulting nurse 4

Other (specify) _____ 5

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 10 ENVIRONMENTAL RELEASE

General Instructions:

Complete Part E (questions 10.23-10.35) for each non-routine release involving the listed substance that occurred during the reporting year. Report on all releases that are equal to or greater than the listed substance's reportable quantity value, RQ, unless the release is federally permitted as defined in 42 U.S.C. 9601, or is specifically excluded under the definition of release as defined in 40 CFR 302.3(22). Reportable quantities are codified in 40 CFR Part 302. If the listed substance is not a hazardous substance under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and, thus, does not have an RQ, then report releases that exceed 2,270 kg. If such a substance however, is designated as a CERCLA hazardous substance, then report those releases that are equal to or greater than the RQ. The facility may have answered these questions or similar questions under the Agency's Accidental Release Information Program and may already have this information readily available. Assign a number to each release and use this number throughout this part to identify the release. Releases over more than a 24-hour period are not single releases, i.e., the release of a chemical substance equal to or greater than an RQ must be reported as a separate release for each 24-hour period the release exceeds the RQ.

For questions 10.25-10.35, answer the questions for each release identified in question 10.23. Photocopy these questions and complete them separately for each release.

PART A GENERAL INFORMATION

10.01 Where is your facility located? Circle all appropriate responses.

CBI

- ☐ Industrial area 1
- Urban area 2
- Residential area ③
- Agricultural area 4
- Rural area 5
- Adjacent to a park or a recreational area 6
- Within 1 mile of a navigable waterway 7
- Within 1 mile of a school, university, hospital, or nursing home facility ⑧
- Within 1 mile of a non-navigable waterway 9
- Other (specify) _____ 10

☐ Mark (X) this box if you attach a continuation sheet.

10.02 Specify the exact location of your facility (from central point where process unit is located) in terms of latitude and longitude or Universal Transverse Mercader (UTM) coordinates.

Latitude 38 ° 36 , 35 N "

Longitude 90 ° 20 , 7 "

UTM coordinates Zone UK , Northing UK , Easting UK

10.03 If you monitor meteorological conditions in the vicinity of your facility, provide the following information.

Average annual precipitation inches/year

Predominant wind direction

10.04 Indicate the depth to groundwater below your facility.

Depth to groundwater meters

10.05 For each on-site activity listed, indicate (Y/N/NA) all routine releases of the listed substance to the environment. (Refer to the instructions for a definition of Y, N, and NA.)

CBI

☐

On-Site Activity

Environmental Release

	Air	Water	Land
Manufacturing	NA	NA	NA
Importing	NA	NA	NA
Processing	Y	N	N
Otherwise used	NA	NA	NA
Product or residual storage	N	N	N
Disposal	NA	NA	NA
Transport	NA	NA	NA

☐ Mark (X) this box if you attach a continuation sheet.

10.06 Provide the following information for the listed substance and specify the level of precision for each item. (Refer to the instructions for further explanation and an example.)

CBI

☐

Quantity discharged to the air	0.5	kg/yr ± 50 %
Quantity discharged in wastewaters	NA	kg/yr ± ____ %
Quantity managed as other waste in on-site treatment, storage, or disposal units	NA	kg/yr ± ____ %
Quantity managed as other waste in off-site treatment, storage, or disposal units	NA	kg/yr ± ____ %

☐ Mark (X) this box if you attach a continuation sheet.

CBI

[]

¹Use the following codes to designate the media affected:

²Specify the average amount of listed substance released to the environment and use the following codes to designate the units used to measure the release:

☐ Mark (X) this box if you attach a continuation sheet.

10.08 Describe the control technologies used to minimize release of the listed substance for each process stream containing the listed substance as identified in your process block or residual treatment block flow diagram(s). Photocopy this question and complete it separately for each process type.

CBI

☐ Process type Polyurethane formation

<u>Stream ID Code</u>	<u>Control Technology</u>	<u>Percent Efficiency</u>
NA*		

* No Control Technology, only release to atmosphere is fugitive emissions from pipeline fittings.

☐ Mark (X) this box if you attach a continuation sheet.

PART B RELEASE TO AIR

- 10.09 Point Source Emissions -- Identify each emission point source containing the listed substance in terms of a Stream ID Code as identified in your process block or residual treatment block flow diagram(s), and provide a description of each point source. Do not include raw material and product storage vents, or fugitive emission sources (e.g., equipment leaks). Photocopy this question and complete it separately for each process type.

CBI

☐

Process type Polyurethane formation

Point Source
ID Code

Description of Emission Point Source

NA

NA

☐ Mark (X) this box if you attach a continuation sheet.

☐ Mark (X) this box if you attach a continuation sheet.

10.10 Emission Characteristics -- Characterize the emissions for each Point Source ID Code identified in question 10.09 by completing the following table.

CBI

☐

Point Source ID Code	Physical State ¹	Average Emissions (kg/day)	Frequency ² (days/yr)	Duration ³ (min/day)	Average Emission Factor ⁴	Maximum Emission Rate (kg/min)	Maximum Emission Rate Frequency (events/yr)	Maximum Emission Rate Duration (min/event)
NA	NA	NA	NA	NA	NA	NA	NA	NA

¹Use the following codes to designate physical state at the point of release:
G = Gas; V = Vapor; P = Particulate; A = Aerosol; O = Other (specify) _____

²Frequency of emission at any level of emission

³Duration of emission at any level of emission

⁴Average Emission Factor -- Provide estimated (\pm 25 percent) emission factor (kg of emission per kg of production of listed substance)

CBI

[]

¹Height of attached or adjacent building²Width of attached or adjacent building

³Use the following codes to designate vent type:

H = Horizontal

V = Vertical

115

10.12 If the listed substance is emitted in particulate form, indicate the particle size distribution for each Point Source ID Code identified in question 10.09.
Photocopy this question and complete it separately for each emission point source.

CBI NA

☐

Point source ID code

Size Range (microns)

Mass Fraction (% ± % precision)

< 1

≥ 1 to < 10

≥ 10 to < 30

≥ 30 to < 50

≥ 50 to < 100

≥ 100 to < 500

≥ 500

Total = 100%

☐ Mark (X) this box if you attach a continuation sheet.

PART C FUGITIVE EMISSIONS

10.13 Equipment Leaks -- Complete the following table by providing the number of equipment types listed which are exposed to the listed substance and which are in service according to the specified weight percent of the listed substance passing through the component. Do this for each process type identified in your process block or residual treatment block flow diagram(s). Do not include equipment types that are not exposed to the listed substance. If this is a batch or intermittently operated process, give an overall percentage of time per year that the process type is exposed to the listed substance. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type Polyurethane formation

Percentage of time per year that the listed substance is exposed to this process type %

Equipment Type	Number of Components in Service by Weight Percent of Listed Substance in Process Stream					Greater than 99%
	Less than 5%	5-10%	11-25%	26-75%	76-99%	
Pump seals ¹						
Packed				NA		
Mechanical				NA		
Double mechanical ²				NA		
Compressor seals ¹				0		
Flanges				3		
Valves						
Gas ³				NA		
Liquid				4		
Pressure relief devices ⁴ (Gas or vapor only)				NA		
Sample connections						
Gas				NA		
Liquid				NA		
Open-ended lines ⁵ (e.g., purge, vent)						
Gas				NA		
Liquid				NA		

¹List the number of pump and compressor seals, rather than the number of pumps or compressors

10.13 continued on next page

☐ Mark (X) this box if you attach a continuation sheet.

10.13 (continued)

² If double mechanical seals are operated with the barrier (B) fluid at a pressure greater than the pump stuffing box pressure and/or equipped with a sensor (S) that will detect failure of the seal system, the barrier fluid system, or both, indicate with a "B" and/or an "S", respectively

³Conditions existing in the valve during normal operation

⁴Report all pressure relief devices in service, including those equipped with control devices

⁵ Lines closed during normal operation that would be used during maintenance operations

10.14 Pressure Relief Devices with Controls -- Complete the following table for those pressure relief devices identified in 10.13 to indicate which pressure relief devices in service are controlled. If a pressure relief device is not controlled, enter "None" under column c.

[]

[illegible]

¹Refer to the table in question 10.13 and record the percent range given under the heading entitled "Number of Components in Service by Weight Percent of Listed Substance" (e.g., <5%, 5-10%, 11-25%, etc.)

²The EPA assigns a control efficiency of 100 percent for equipment leaks controlled with rupture discs under normal operating conditions. The EPA assigns a control efficiency of 98 percent for emissions routed to a flare under normal operating conditions

☐ Mark (X) this box if you attach a continuation sheet.

10.15 Equipment Leak Detection -- If a formal leak detection and repair program is in place, complete the following table regarding those leak detection and repair procedures. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type Polyurethane formation

<u>Equipment Type</u>	<u>Leak Detection Concentration (ppm or mg/m³) Measured at _____ Inches from Source</u>	<u>Detection Device¹</u>	<u>Frequency of Leak Detection (per year)</u>	<u>Repairs Initiated (days after detection)</u>	<u>Repairs Completed (days after initiated)</u>
Pump seals					
Packed					
Mechanical					
Double mechanical					
Compressor seals					
Flanges	NA	0	UK	UK	UK
Valves					
Gas					
Liquid	NA	0	UK	UK	UK
Pressure relief devices (gas or vapor only)					
Sample connections					
Gas					
Liquid					
Open-ended lines					
Gas					
Liquid					

¹Use the following codes to designate detection device:

POVA = Portable organic vapor analyzer

FPM = Fixed point monitoring

0 = Other (specify) Visual inspection

☐ Mark (X) this box if you attach a continuation sheet.

☐ Mark (X) this box if you attach a continuation sheet.

- 10.16 Raw Material, Intermediate and Product Storage Emissions -- Complete the following table by providing the information on each liquid raw material, intermediate, and product storage vessel containing the listed substance as identified in your process block or residual treatment block flow diagram(s).

CBI

☐

Vessel Type ¹	Floating Roof ² Seals ²	Composition of Stored Materials ³	Throughput (liters per year)	Vessel Filling Rate (gpm)	Vessel Filling Duration (min)	Vessel Inner Diameter (m)	Vessel Height (m)	Operating Volume (l)	Vessel Emission Controls ⁴	Design Flow Rate ⁵	Vent Diameter (cm)	Control Efficiency (%)	Basis for Estimate ⁶
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

¹Use the following codes to designate vessel type:

F = Fixed roof
 CIF = Contact internal floating roof
 NCIF = Noncontact internal floating roof
 EFR = External floating roof
 P = Pressure vessel (indicate pressure rating)
 H = Horizontal
 U = Underground

²Use the following codes to designate floating roof seals:

MS1 = Mechanical shoe, primary
 MS2 = Shoe-mounted secondary
 MS2R = Rim-mounted, secondary
 LM1 = Liquid-mounted resilient filled seal, primary
 LM2 = Rim-mounted shield
 LMW = Weather shield
 VM1 = Vapor mounted resilient filled seal, primary
 VM2 = Rim-mounted secondary
 VMW = Weather shield

³Indicate weight percent of the listed substance. Include the total volatile organic content in parenthesis

⁴Other than floating roofs

⁵Gas/vapor flow rate the emission control device was designed to handle (specify flow rate units)

⁶Use the following codes to designate basis for estimate of control efficiency:

C = Calculations
 S = Sampling

PART D RELEASE TO WATER

10.17 National Pollutant Discharge Elimination System (NPDES) Discharges -- Complete the following information for each body of water NPDES discharges are discharged into.
CBI If discharges are to more than one body of water, photocopy this question and complete it separately for each discharge.

☐ Discharge source (stream ID code)
Is discharge to a moving or standing body of water? Circle the appropriate response.
Moving body of water 1
Standing body of water 2
Estimated average base flow (moving) l/day
Estimated average volume (standing) l
Average volume of discharge from facility l/day
..... days/year
Maximum volume of discharge from facility l/day
..... days/year
Average concentration of listed substance in discharge mg/l or ppm
Maximum concentration of listed substance in discharge mg/l or ppm

10.18 Publicly Owned Treatment Works (POTW) -- Complete the following information for discharges containing the listed substance which are discharged to a POTW from your facility.

CBI
☐ Discharge source (stream ID code)
Average volume of discharge from facility l/day
..... days/year
Maximum volume of discharge from facility l/day
..... days/year
Average concentration of listed substance in discharge mg/l or ppm
Maximum concentration of listed substance in discharge mg/l or ppm

☐ Mark (X) this box if you attach a continuation sheet.

10.19 Nonpoint Sources -- Complete the following information for each nonpoint discharge source. Examples of nonpoint sources include stormwater runoff, waste pile runoff, and runoff from product or raw material storage areas or other sources that contain the listed substance and may be discharged to surface water. Include NPDES or POTW discharges. If discharges are to more than one body of water, photocopy this question and complete it separately for each discharge.

CBI

☐ Discharge source (stream ID code)

Is discharge to a moving or standing body of water? Circle the appropriate response.

Moving body of water 1

Standing body of water 2

Estimated average base flow (moving) 1/day

Estimated average volume (standing) 1

Average volume of discharge from facility 1/day

..... days/year

Maximum volume of discharge from facility 1/day

..... days/year

Average concentration of listed substance in discharge mg/l or ppm

Maximum concentration of listed substance in discharge mg/l or ppm

☐ Mark (X) this box if you attach a continuation sheet.

10.20 Releases to Soils -- Complete the following information for up to three random soil core samples that were taken and analyzed for the listed substance during the reporting year. Report the concentrations of the listed substance determined by soil core monitoring studies/tests. Specify the distance from the facility that soil cores were taken, and indicate the soil type and sample depth of the soil cores. (Refer to the glossary for definitions of soil textures given in footnote 2.)

CBI

☐

Sample	Concentration (ug/kg) of Listed Substance (± % precision)	Distance from Plant (m) ¹	Soil Texture ²	Sample Depth (cm)
1				
2				
3				

¹Use the following code to designate if the sample was taken within the facility's boundary:

OS = On-site

²Use the following codes to designate soil texture:

A = Sand	G = Sandy clay loam
B = Loamy sand	H = Clay loam
C = Sandy loam	I = Silty clay loam
D = Loam	J = Sandy clay
E = Silty loam	K = Silty clay
F = Silt	L = Clay

10.21 Releases to Groundwater -- Complete the following information for up to three random samples of groundwater from monitoring wells during the reporting year that were analyzed for the listed substance. The average and maximum concentration refers to the listed substance.

CBI

☐

Sample	Distance from Plant (m) ¹	Well Depth (m)	Average Concentration (mg/l) (± % precision)	Maximum Concentration (mg/l) (± % precision)
1				
2				
3				

¹Use the following code to designate if the sample was taken within the facility's boundary:

OS = On-site

☐ Mark (X) this box if you attach a continuation sheet.

10.22 Releases to Drinking Water -- Complete the following table for up to three samples from drinking water wells monitored during the reporting year. The average and maximum concentration refers to the listed substance.

CBI

[]

<u>Well</u>	<u>Well Depth (m)</u>	<u>Distance from Plant (m)¹</u>	<u>Average Concentration (mg/l) (+ % precision)</u>	<u>Maximum Concentration (mg/l) (+ % precision)</u>
<u>1</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>2</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>3</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

¹Use the following code to designate if the sample was taken within the facility's boundary:

OS = On-site

[] Mark (X) this box if you attach a continuation sheet.

PART E NON-ROUTINE RELEASES

10.23 Indicate the date and time when the release occurred and when the release ceased or was stopped. If there were more than six releases, attach a continuation sheet and list all releases.

<u>Release</u>	<u>Date Started</u>	<u>Time (am/pm)</u>	<u>Date Stopped</u>	<u>Time (am/pm)</u>
<u>1</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>2</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>3</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>4</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>5</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>6</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

10.24 Specify the weather conditions at the time of each release.

<u>Release</u>	<u>Wind Speed (km/hr)</u>	<u>Wind Direction</u>	<u>Humidity (%)</u>	<u>Temperature (°C)</u>	<u>Precipitation (Y/N)</u>
<u>1</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>2</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>3</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>4</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>5</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>6</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

☐ Mark (X) this box if you attach a continuation sheet.

- 10.25 Complete the following information for each media into which the listed substance was released. Any volatile substance that was released to land, but that was expected to volatilize, should be listed as a release to air.

Release No.

Media	Quantity (kg)	Method of Release	Migration Beyond Boundaries (Y/N)	Quantity Migrated (kg)
Land				
Air				
Groundwater				
Surface water				

- 10.26 Specify the physical state and concentration of the listed substance at the time and point of release.

Release No.

Point of release

Physical state

Concentration (%)

☐ Mark (X) this box if you attach a continuation sheet.

10.27 Circle all appropriate responses relating to the cause and the effects of the release.

Release No.

Cause of Release

Equipment failure 1
Operator error 2
Bypass condition 3
Upset condition 4
Fire 5
Unknown 6
Other (specify) 7

Results of Release

Spill 1
Vapor release 2
Explosion 3
Fire 4
Other (specify) 5

☐ Mark (X) this box if you attach a continuation sheet.

10.28 (continued)

c. LocalAgency ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐Office ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐Contact Person ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐Address ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Street

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

City

☐☐

State

Telephone Number ☐☐☐☐-☐☐☐☐-☐☐☐☐Date Notified ☐☐☐ ☐☐☐ ☐☐☐
Mo. Day YearTime Notified ☐☐☐☐ am/pm

10.29 For each of the proximities listed below, indicate whether the population living within that proximity was notified of, or evacuated because of the release. Specify who notified the population, the number of people evacuated, if any, and the date and time of day the evacuation began.

Release No.

Proximity to the Release	Notified of Release (Y/N)	Notifying Person	Notifying Person's Telephone Number	Area Evacuated (Y/N)	Number of Persons Evacuated	Date and Time of Day Evacuation Began
1/4 mile						
1/2 mile						
1 mile						
Other (Specify)						

☐ Mark (X) this box if you attach a continuation sheet.

10.30 Specify the number of personal injuries or casualties resulting from the release.

Release No.

Number of injuries to facility employees

Number of injuries to general population

Number of deaths to facility employees

Number of deaths to general population

10.31 Indicate who conducted cleanup activities, and the dates over which the cleanup was performed.

Release No.

[illegible]

Address

Street

[REDACTED]

City

$$[\overline{1}][\overline{2}] \quad [\overline{1}][\overline{2}][\overline{3}][\overline{4}][\overline{5}] \text{---} [\overline{1}][\overline{2}][\overline{3}][\overline{4}]$$

State

Zip

Telephone Number [] [] [] - [] [] [] - [] [] [] []

Date Cleanup Initiated [] [] [] []

Mo. Year

Date Cleanup Completed (or expected) [] [] [] []

Mo. Year

10.32 Briefly describe the release prevention practices and policies (backup systems, containment systems, training programs, etc.) in place at the facility at the time the release occurred.

Release No.

☐ Mark (X) this box if you attach a continuation sheet.

10.33 Indicate which of the prevention practices and policies listed in question 10.32 were ineffective in preventing the release from reaching the environment.

Release No.

10.34 Describe all repairs and/or preventive measures (management practices, operational changes, etc.) made to equipment or operations as a result of the release.

Release No.

10.35 Describe additional preventive measures that will be taken to minimize the possibilities of recurrence.

Release No.

☐ Mark (X) this box if you attach a continuation sheet.

APPENDIX I: List of Continuation Sheets

Attach continuation sheets for sections of this form and optional information after this page. In column 1, clearly identify the continuation sheet by listing the question number to which it relates. In column 2, enter the inclusive page numbers of the continuation sheet for each question number.

[illegible]

☐ Mark (X) this box if you attach a continuation sheet.

APPENDIX II: Substantiation Form and Instructions
to Accompany Claims of Confidentiality Under the
Comprehensive Assessment Information Rule (CAIR)

If you assert one or more claims of confidentiality for information submitted on a Comprehensive Assessment Information Rule (CAIR) form, please answer, pursuant to 40 CFR 740.219, all the following questions in the space provided. Type all responses. If you need more space to answer a particular question, please use additional sheets. If you use additional sheets, be sure to include the section, number, and (if applicable) subpart of the question being answered, and write your facility's name and Dun & Bradstreet Number in the lower right-hand corner of each sheet. A completed copy of this form must accompany all submissions containing one or more claims of confidentiality. Failure to do so will result in the waiver of your claim of confidentiality.

EPA has identified six information categories as those which encompass all claims of confidentiality. These are: Submitter identity (h); Substance identity (i); Volume manufactured, imported, or processed (j); Use information (k); Process information (l); and Other information (m). Respondents who assert a CBI claim on the reporting form must mark the letter(s) (h through m) that represent(s) the appropriate category(ies) of confidentiality in the box adjacent to the question, and answer the questions in this form.

Respondents who assert a CBI claim for information submitted under CAIR must also provide EPA with sanitized and unsanitized versions of their submissions. The unsanitized version must be complete and contain all information being claimed as confidential. The sanitized copy must contain only information not claimed as confidential. EPA will place the second copy of the submission in the public file. Failure to submit the second copy of the form at the time the respondent submits the reporting form containing confidential information or after receipt of a notice from EPA thereafter will result in a waiver of the respondent's claim of confidentiality.

Please indicate the CAS Registry Number (if known) or chemical name (if the CAS Registry Number is not known) for the substance that is the subject of this form:

If you are reporting on a tradename, please provide the tradename for the substance that is the subject of this form:

Does this form contain CBI? [] Yes ☒ No

If the answer to this question is yes, you must bracket the text claimed as CBI. Any unbracketed information may be placed in the public file.

☐ Mark (X) this box if you attach a continuation sheet.

A. All Claims. Respondents who assert any CBI claims must answer the following questions in addition to the appropriate questions from sections B through G, below:

(1) For what period do you assert a claim of confidentiality? If a claim is to extend until a certain event or point in time, please indicate that event or time period. If the period indicated is longer than 2 calendar years, explain why. If different periods of protection are required for different categories of information, please so indicate.

(2) Has the information that you are claiming as confidential been or will it be disclosed to individuals outside your company?

☐ Yes ☐ No

If so, what, if any, restrictions apply to the use or further disclosure of the information?

(3) Briefly describe the physical and procedural restrictions, if any, within your company on the use and storage of the information you are claiming as confidential. What other steps have you taken to prevent the undesired disclosure of the information by others?

(4) Does the information you are claiming as confidential appear or is it referred to in advertising, promotional, or safety materials for the substance or an end-product containing the substance?

☐ Yes ☐ No

Does it appear or is it referred to in professional or trade publications?

☐ Yes ☐ No

If so, indicate why the information should nonetheless be considered confidential.

☐ Mark (X) this box if you attach a continuation sheet.

(5) If the information you wish to claim as confidential were to be disclosed to the public by EPA, how much difficulty would a new competitor have in entering the market for this substance, considering such constraints as capital and marketing costs, specialized marketing expertise, or unusual production processes?

(6) Has EPA, another Federal agency, or a Federal Court made any pertinent confidentiality determinations for information regarding this substance?

☐ Yes ☐ No

If so, please identify the entity and provide EPA with copies of such determinations.

B. Submitter Identity (code h). Respondents who assert CBI claims for submitter identity must also answer the following questions:

(1) Approximately how many competitors do you have in the market for this substance or the final product containing this substance?

(2) What harm, if any, would result from EPA's disclosure of the submitter identity? Provide detailed descriptions of both the probable harm from disclosure and the causal relationship between disclosure and harm.

(3) If you have also asserted a claim of confidentiality for substance identity, what harm to your company's competitive position would result from disclosure of your company's identity if the substance identity were to remain confidential?

☐ Mark (X) this box if you attach a continuation sheet.

C. Substance Identity (code i). Specific substance identity can be claimed as confidential only if that substance identity is confidential for purposes of the TSCA Chemical Substance Inventory. Respondents who assert CBI claims for substance identity must also answer the following questions:

- (1) (a) Has the substance been patented or disclosed in a patent in the U.S. or elsewhere?

☐ Yes ☐ No

If so, indicate the relevant patent(s) and the reasons why the substance identity should nonetheless be considered confidential.

Patent Number: _____

- (b) Exactly what information which does not appear in the patent would be disclosed to competitors by releasing the specific substance identity? Explain in detail how competitors could use this information.

- (c) Since the patent provides protection for the substance, why are you asserting confidentiality?

- (2) (a) In what form (i.e., product, effluent, emission, etc.) does this substance leave your site?

- (b) What measures have you taken to guard against the discovery of the substance identity by others?

☐ Mark (X) this box if you attach a continuation sheet.

-
- (c) If the substance is formulated with other chemicals, list them, and state the concentration of the claimed substance in the mixture.

- (3) (a) If the substance leaves the site in a product that is available to the public or your competitors, can the substance be identified by analysis of the product?

☐ Yes ☐ No

- (b) Is it likely that a competitor has attempted or will attempt to chemically analyze the substance?

☐ Yes ☐ No

- (c) Would the cost and difficulty of such analysis be great or small? Why?

- (4) What harm, if any, would result from EPA's public disclosure of the specific chemical identity? Provide detailed descriptions of both the probable harm to your company from disclosure and the causal relationship between release and harm.

- (5) Would public disclosure of the specific chemical identity reveal to your competitors the use of the substance or the process by which this substance is manufactured?

☐ Mark (X) this box if you attach a continuation sheet.

D. Volume Manufactured, Imported, or Processed (code j). Respondents who assert CBI claims for volume manufactured, imported, or processed must also answer the following questions:

(1) If you have also claimed submitter's name as confidential and EPA keeps confidential the link between your company identity and the volume manufactured, imported, or processed, your identity will not be associated in any way with that volume. In this case, what harm to your company's competitive position would result from disclosing that volume? How could a competitor use this information? What is the causal relationship between the disclosure and the harm?

(2) If you have also claimed substance identity as confidential and EPA keeps confidential the link between the substance identity and the volume manufactured, imported, or processed, the substance identity will not be associated in any way with that volume. In this case, what harm to your company's competitive position would result from disclosing that volume? How could a competitor use that information? What is the causal relationship between the disclosure and the harm?

(3) If you have claimed neither submitter nor substance identity as confidential, what harm, if any, would result from release of your volume manufactured, imported, or processed? Provide a detailed description of both the harm and the causal relationship between disclosure and harm.

E. Use Information (code k). Respondents who assert CBI claims for use information must also answer the following questions:

(1) If you have also claimed submitter identity as confidential and EPA keeps confidential the link between your company identity and the use data, your identity will not be associated in any way with the use data. In this case, what harm to your competitive position would result from disclosing the use data? How could a competitor use this information? What is the causal relationship between the disclosure and the harm?

☐ Mark (X) this box if you attach a continuation sheet.

(2) If you have also claimed substance identity as confidential and EPA keeps confidential the link between the substance identity and the use data, the substance identity will not be associated in any way with the use data. In this case, what harm to your company's competitive position would result from disclosing the use data? How could a competitor use this information? What is the causal relationship between the disclosure and the harm?

(3) If you have claimed neither submitter nor substance identity as confidential, what harm, if any, would result from release of your use information? Provide a detailed description of both the harm and the causal relationship between disclosure and harm.

F. Process information (code 1). Respondents who assert CBI claims for process information must also answer the following questions:

(1) If you have also claimed submitter identity as confidential and EPA keeps confidential the link between your company identity and process information, your identity will not be associated in any way with this information. In this case, what harm to your competitive position would result from disclosing the process information? How could a competitor use this information? What is the causal relationship between the disclosure and the harm?

(2) If you have also claimed substance identity as confidential and EPA keeps confidential the link between the substance identity and the process information, the substance identity will not be associated in any way with the process information. In this case, what harm to your company's competitive position would result from disclosing the process information? How could a competitor use this information? What is the causal relationship between the disclosure and the harm?

☐ Mark (X) this box if you attach a continuation sheet.

(3) If you claimed neither submitter nor substance identity as confidential, what harm, if any, would result from release of your process information? Provide a detailed description of both the harm and the causal relationship between the disclosure and the harm.

G. Other information (code m). Respondents who assert CBI claims using the "other information" category, must also answer the following questions:

(1) Is the item confidential in and of itself, or is it confidential because it will reveal some other confidential information, whether or not that other information is reported on this form? If the latter, what is the information that will be revealed, and how would disclosure of the item in turn lead to disclosure of the other information?

(2) Describe with specificity the harm to your company's competitive position which would result from disclosing the information.

(3) If you have also claimed submitter identity as confidential and EPA keeps confidential the link between your company identity and this information, your identity will not be associated in any way with the item claimed. In this case, what harm to your competitive position would result from disclosing the item? How could a competitor use this information? What is the causal relationship between the disclosure and the harm?

(4) If you have also claimed substance identity as confidential and EPA keeps confidential the link between the substance identity and the item, the substance identity (other than category name) will not be associated in any way with the item claimed. In this case, what harm to your company's competitive position would result from disclosing the item? How could a competitor use this information? What is the causal relationship between the disclosure and the harm?

☐ Mark (X) this box if you attach a continuation sheet.

I certify that I have personally examined and am familiar with the information submitted in this CBI Substantiation Form and all attached documents. Based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete.

NAME

SIGNATURE

DATE SIGNED

TITLE

(_____) -

TELEPHONE NO.

☐ Mark (X) this box if you attach a continuation sheet.

1347
Mobay Corporation
A Bayer USA INC. COMPANY

Bayer



DIVISION ADDRESS

MOBAY CORPORATION
Polyurethane Division
Mobay Road
Pittsburgh, PA 15205-9741

ISSUE DATE
SUPERSEDES

U-171
3/21/88
9/14/87

TRANSPORTATION EMERGENCY: CALL CHEMTREC
TELEPHONE NO: 800-424-9300: DISTRICT OF COLUMBIA: 202-483-7616

MOBAY NON-TRANSPORTATION EMERGENCY NO.:
(412) 923-1800

I. PRODUCT IDENTIFICATION

PRODUCT NAME.....: Mondur TD-80 (All Grades)
PRODUCT CODE NUMBER.....: E-002
CHEMICAL FAMILY.....: Aromatic Isocyanate
CHEMICAL NAME.....: Toluene Diisocyanate (TDI)
SYNONYMS.....: Benzene, 1,3-diisocyanato methyl-
CAS NUMBER.....: 26471-62-5
T.S.C.A. STATUS.....: On Inventory
OSHA HAZARD COMMUNICATION
STATUS.....: This product is hazardous under the criteria of
the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
CHEMICAL FORMULA.....: $C_9H_6N_2O_2$

II. HAZARDOUS INGREDIENTS

COMPONENTS:	%:	OSHA-PEL	ACGIH-TLV
2,4-Toluene Diisocyanate (TDI) CAS# 584-84-9	80%	0.02 ppm Ceiling	0.005 ppm TWA 0.02 ppm STEL
2,6-Toluene Diisocyanate (TDI) CAS# 91-08-7	20%	Not Established	Not Established

III. PHYSICAL DATA

APPEARANCE.....: Liquid
COLOR.....: Water white to pale yellow
ODOR.....: Sharp, pungent
ODOR THRESHOLD.....: Greater than TLV of 0.005 ppm
MOLECULAR WEIGHT.....: 174
MELT POINT/FREEZE POINT...: Approx. 55°F (13°C)
BOILING POINT.....: Approx. 484°F (251°C)
VAPOR PRESSURE.....: Approx. 0.025 mmHg @ 77°F (25°C)
VAPOR DENSITY (AIR=1).....: 6.0
pH.....: Not Applicable
SPECIFIC GRAVITY.....: 1.22 @ 77°F (25°C)
BULK DENSITY.....: 10.18 lbs/gal
SOLUBILITY IN WATER.....: Reacts slowly with water at normal room
temperature to liberate CO₂ gas.
% VOLATILE BY VOLUME.....: Negligible

Question 4.02 page 142

Product Code: E-002
Page 1 of 8

IV. FIRE & EXPLOSION DATA

FLASH POINT °F(°C).....: 260°F (127°C) Pinsky-Martens Closed Cup

FLAMMABLE LIMITS -

Le1.....: 0.9%

Uel.....: 9.5%

EXTINGUISHING MEDIA.....: Dry chemical (e.g. monoammonium phosphate, potassium sulfate, and potassium chloride), carbon dioxide, high expansion (proteinic) chemical foam, water spray for large fires. Caution: Reaction between water or foam and hot TDI can be vigorous.

SPECIAL FIRE FIGHTING PROCEDURES/UNUSUAL FIRE OR EXPLOSION HAZARDS:

Full emergency equipment with self-contained breathing apparatus and full protective clothing (such as rubber gloves, boots, bands around legs, arms and waist) should be worn by fire fighters. No skin surface should be exposed. During a fire, TDI vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. (See Section VIII). At temperatures greater than 350°F (177°C) TDI forms carbodiimides with the release of CO₂, which can cause pressure build-up in closed containers. Explosive rupture is possible. Therefore, use cold water to cool fire-exposed containers.

V. HUMAN HEALTH DATA

PRIMARY ROUTE(S) OF

ENTRY.....: Inhalation. Skin contact from liquid, vapors or aerosols.

EFFECTS AND SYMPTOMS OF OVEREXPOSURE

INHALATION

Acute Exposure. TDI vapors or mist at concentrations above the TLV can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperactivity can respond to concentrations below the TLV with similar symptoms as well as asthma attack. Exposure well above the TLV may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). These effects are usually reversible. Chemical or hypersensitive pneumonitis, with flu-like symptoms (e.g., fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure.

Chronic Exposure. As a result of previous repeated overexposures or a single large dose, certain individuals may develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the TLV. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be immediate or delayed up to several hours after exposure. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Chronic overexposure to isocyanate has also been reported to cause lung damage (including decrease in lung function) which may be permanent. Sensitization can either be temporary or permanent.

V. HUMAN HEALTH DATA (Continued)

SKIN CONTACT

Acute Exposure. Isocyanates react with skin protein and moisture and can cause irritation which may include the following symptoms: reddening, swelling, rash, scaling or blistering. Cured material is difficult to remove.

Chronic Exposure. Prolonged contact can cause reddening, swelling, rash, scaling, blistering, and, in some cases, skin sensitization. Individuals who have developed a skin sensitization can develop these symptoms as a result of contact with very small amounts of liquid material or as a result of exposure to vapor.

EYE CONTACT

Acute Exposure. Liquid, aerosols or vapors are severely irritating and can cause pain, tearing, reddening and swelling. If left untreated, corneal damage can occur and injury is slow to heal. However, damage is usually reversible. See Section VI for treatment.

Chronic Exposure. Prolonged vapor contact may cause conjunctivitis.

INGESTION

Acute Exposure. Can result in irritation and corrosive action in the mouth, stomach tissue and digestive tract. Symptoms can include sore throat, abdominal pain, nausea, vomiting and diarrhea.

Chronic Exposure. None found.

MEDICAL CONDITIONS

AGGRAVATED BY EXPOSURE... Asthma, other respiratory disorders (bronchitis, emphysema, bronchial hyperactivity), skin allergies, eczema.

CARCINOGENICITY..... No carcinogenic activity was observed in lifetime inhalation studies in rats and mice (International Isocyanate Institute).

NTP..... The National Toxicology Program reported that TDI caused an increase in the number of tumors in exposed rats over those counted in non-exposed rats. The TDI was administered in corn-oil and introduced into the stomach through a tube. Based on this study, the NTP has listed TDI as a substance that may reasonably be anticipated to be a carcinogen in its Fourth Annual Report on Carcinogens.

IARC..... IARC has announced that it will list TDI as a substance for which there is sufficient evidence for its carcinogenicity in experimental animals but inadequate evidence for the carcinogenicity of TDI to humans (IARC Monograph 39).

OSHA..... Not listed.

EXPOSURE LIMITS

OSHA PEL..... 0.02 ppm Ceiling

ACGIH TLV..... 0.005 ppm TWA/0.02 ppm STEL

VI. EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT..... Flush with copious amounts of water, preferably lukewarm for at least 15 minutes holding eyelids open all the time. Refer individual to physician or an ophthalmologist for immediate follow-up.

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VI. EMERGENCY & FIRST AID PROCEDURE (Continued)

SKIN CONTACT.....: Remove contaminated clothing immediately. Wash affected areas thoroughly with soap and water for at least 15 minutes. Tincture of green soap and water is also effective in removing isocyanates. Wash contaminated clothing thoroughly before reuse. For severe exposures, get under safety shower after removing clothing, then get medical attention. For lesser exposures, seek medical attention if irritation develops or persists after the area is washed.

INHALATION.....: Move to an area free from risk of further exposure. Administer oxygen or artificial respiration as needed. Obtain medical attention. Asthmatic-type symptoms may develop and may be immediate or delayed up to several hours. Consult physician.

INGESTION.....: Do not induce vomiting. Give 1 to 2 cups of milk or water to drink. **DO NOT GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.** Consult physician.

NOTE TO PHYSICIAN.....: Eyes. Stain for evidence of corneal injury. If cornea is burned, instill antibiotic steroid preparation frequently. Workplace vapors have produced reversible corneal epithelial edema impairing vision. Skin. This compound is a known skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burns. Ingestion. Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of this compound. Respiratory. This compound is a known pulmonary sensitizer. Treatment is essentially symptomatic. An individual having a skin or pulmonary sensitization reaction to this material should be removed from exposure to any isocyanate.

VII. EMPLOYEE PROTECTION RECOMMENDATIONS

EYE PROTECTION.....: Liquid chemical goggles or full-face shield. Contact lenses should not be worn. If vapor exposure is causing irritation, use a full-face, air-supplied respirator.

SKIN PROTECTION.....: Chemical resistant gloves (butyl rubber, nitrile rubber, polyvinyl alcohol). However, please note that PVA degrades in water. Cover as much of the exposed skin area as possible with appropriate clothing. If skin creams are used, keep the area covered only by the cream to a minimum.

RESPIRATORY PROTECTION....: An approved positive pressure air-supplied respirator is required whenever TDI concentrations are not known or exceed the Short-Term Exposure or Ceiling Limit of 0.02 ppm or exceed the 8-hour Time Weighted Average TLV of 0.005 ppm. An approved air-supplied respirator with full facepiece must also be worn during spray application, even if exhaust ventilation is used. For emergency and other conditions where the exposure limits may be greatly exceeded, use an approved, positive pressure self-contained breathing apparatus. TDI has poor warning properties since the odor at which TDI can be smelled is substantially higher than 0.02 ppm. Observe OSHA regulations for respirator use (29 CFR 1910.134).

VII. EMPLOYEE PROTECTION RECOMMENDATIONS (Continued)

VENTILATION.....: Local exhaust should be used to maintain levels below the TLV whenever TDI is handled, processed, or spray-applied. At normal room temperatures (70°F) TDI levels quickly exceed the TLV unless properly ventilated. Standard reference sources regarding industrial ventilation (e.g., ACGIH Industrial Ventilation) should be consulted for guidance about adequate ventilation.

MONITORING.....: TDI exposure levels must be monitored by accepted monitoring techniques to ensure that the TLV is not exceeded. (Contact Mobay for guidance). See Volume 1 (Chapter 17) and Volume 3 (Chapter 3) in Patty's Industrial Hygiene and Toxicology for sampling strategy.

MEDICAL SURVEILLANCE.....: Medical supervision of all employees who handle or come in contact with TDI is recommended. These should include preemployment and periodic medical examinations with respiratory function tests (FEV₁, FVC as a minimum). Persons with asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases or recurrent skin eczema or sensitization should be excluded from working with TDI. Once a person is diagnosed as sensitized to TDI, no further exposure can be permitted.

OTHER.....: Safety showers and eyewash stations should be available. Educate and train employees in safe use of product. Follow all label instructions.

VIII. REACTIVITY DATA

STABILITY.....: Stable under normal conditions.

POLYMERIZATION.....: May occur if in contact with moisture or other materials which react with isocyanates. Self-reaction may occur at temperatures over 350°F (177°C) or at lower temperatures if sufficient time is involved. See Section IV.

INCOMPATIBILITY

(MATERIALS TO AVOID).....: Water, amines, strong bases, alcohols. Will cause some corrosion to copper alloys and aluminum. Reacts with water to form heat, CO₂, and insoluble ureas.

HAZARDOUS DECOMPOSITION

PRODUCTS.....: By high heat and fire: carbon monoxide, oxides of nitrogen, traces of HCN, TDI vapors and mist.

IX. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Evacuate and ventilate spill area; dike spill to prevent entry into water system; wear full protective equipment, including respiratory equipment during clean-up. (See Section VII).

Major Spill: Call Mobay at 412/923-1800. If transportation spill, call CHEMTREC 800/424-9300. If temporary control of isocyanate vapor is required, a blanket of protein foam (available at most fire departments) may be placed over the spill. Large quantities may be pumped into closed, but not sealed, container for disposal.

IX. SPILL OR LEAK PROCEDURES (Continued)

Minor Spill: Absorb isocyanate with sawdust or other absorbent, shovel into suitable unsealed containers, transport to well-ventilated area (outside) and treat with neutralizing solution: mixture of water (80%) with non-ionic surfactant Tergitol TMN-10 (20%), or; water (90%), concentrated ammonia (3-8%) and detergent (2%). Add about 10 parts of neutralizer per part of isocyanate, with mixing. Allow to stand uncovered for 48 hours to let CO₂ escape.

Clean-up: Decontaminate floor with decontamination solution letting stand for at least 15 minutes.

CERCLA (SUPERFUND) REPORTABLE QUANTITY: 100 pounds for TDI

WASTE DISPOSAL METHOD.....: Follow all federal, state or local regulations. TDI must be disposed of in a permitted incinerator or landfill. Incineration is the preferred method for liquids. Solids are usually incinerated or landfilled. Empty containers must be handled with care due to product residue. Decontaminate containers prior to disposal. Empty decontaminated containers should be crushed to prevent reuse. **DO NOT HEAT OR CUT EMPTY CONTAINER WITH ELECTRIC OR GAS TORCH.** (See Sections IV and VIII). Vapors and gases may be highly toxic.

RCRA STATUS.....: TDI is listed as a hazardous waste (No. U-223) under Title 40 Code of Federal Regulations, Section 261.33 (f). The residue from decontaminating a TDI spill is also classified as a hazardous waste under Section 261.3 (c)(2) or RCRA.

X. SPECIAL PRECAUTIONS & STORAGE DATA

STORAGE TEMPERATURE

(MIN./MAX.).....: 70⁰F (21⁰C)/90⁰F (32⁰C)

AVERAGE SHELF LIFE.....: 12 months

SPECIAL SENSITIVITY

(HEAT, LIGHT, MOISTURE): If container is exposed to high heat, 375⁰F (177⁰C) it can be pressurized and possibly rupture. TDI reacts slowly with water to form polyureas and liberates CO₂ gas. This gas can cause sealed containers to expand and possibly rupture.

PRECAUTIONS TO BE TAKEN

IN HANDLING AND STORING: Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected. Prevent all contact. Do not breathe the vapors. Warning properties (irritation of the eyes, nose and throat or odor) are not adequate to prevent chronic overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposures to lower concentrations. Exposure to vapors of heated TDI can be extremely dangerous. Employee education and training in safe handling of this product are required under the OSHA Hazard Communication Standard.

XI. SHIPPING DATA

D.O.T. SHIPPING NAME.....: Toluene Diisocyanate
TECHNICAL SHIPPING NAME....: Toluene Diisocyanate
D.O.T. HAZARD CLASS.....: Poison B
UN/NA NO.....: UN 2078
PRODUCT RQ.....: 100 pounds
D.O.T. LABELS.....: Poison
D.O.T. PLACARDS.....: Poison
FRT. CLASS BULK.....: Toluene Diisocyanate
FRT. CLASS PKG.....: Chemicals, NOI (Toluene Diisocyanate) NMFC 60000
PRODUCT LABEL.....: Mondur TD-80 Product Label

XII. ANIMAL TOXICITY DATA

ACUTE TOXICITY

ORAL, LD50.....: Range of 4130-6170 mg/kg (Rats and Mice)
DERMAL, LD50.....: Greater than 10,000 mg/kg (Rabbits)
INHALATION, LC50.(4 hr): Range of 16-50 ppm (Rat), 10 ppm (Mouse),
11 ppm (Rabbit), 13 ppm (Guinea Pig).
EYE EFFECTS.....: Severe corneal opacities
SKIN EFFECTS.....: Moderate skin irritation
irritation score: 4.12/8.0 (Draize) prolonged contact may culminate in severe skin irritation and/or corrosion.

SENSITIZATION.....: Skin sensitizer in guinea pigs. One study using guinea pigs reported that repeated skin contact with TDI caused respiratory sensitization. Although poorly defined in experimental animal models, TDI is known to be a pulmonary sensitizer in humans. In addition, there is some evidence that cross-sensitization between different types of diisocyanates may occur.

SUB-CHRONIC/CHRONIC TOXICITY: Sub-chronic and chronic animal studies show that the primary effects of inhaling vapors and/or aerosols of TDI are restricted to the pulmonary systems. Emphysema, pulmonary edema, pneumonitis and rhinitis are common pathologic effects. Extended exposures to as low as 0.1 ppm TDI have induced pulmonary inflammation.

OTHER

CARCINOGENICITY.....: The NTP conducted carcinogenesis studies of a commercial grade TDI using rats and mice in which the test material was diluted in corn oil and administered by gavage. The investigators concluded that TDI was carcinogenic in male and female rats (fibrosarcomas, pancreatic adenomas, neoplastic liver nodules and mammary gland fibrosarcomas) and female mice (hemangiosarcomas and hepatocellular adenomas). However, chronic inhalation studies in which rats and mice were exposed to 0.05 and 0.15 ppm TDI (10-30 times recommended TLV, 8-hr level) induced no treatment-related tumorigenic effects. In these studies, both exposure levels produced extensive irritation to the nasal passages and upper respiratory system of the test animals indicating that suitable effective exposures were administered.

XII. ANIMAL TOXICITY DATA (Continued)

MUTAGENICITY.....: TDI is positive in the Ames assay with activation. However, mammalian cell transformation assays using human lung cells and Syrian hamster kidney cells were negative, as were micronucleus tests using rats and mice.

AQUATIC TOXICITY.....: LC₅₀ - 96 hr (static): 165 mg/liter (Fathead minnow)
LC₅₀ - 96 hr (static): Greater than 508 mg/liter (Grass shrimp)
LC₅₀ - 24 hr (static): Greater than 500 mg/liter (Daphnia magna)

XIII. APPROVALS

REASON FOR ISSUE.....: Correcting Section II, Hazardous Ingredients
PREPARED BY.....: G. L. Copeland
APPROVED BY.....: J. H. Chapman
TITLE.....: Manager, Product Safety - Polyurethane

Product Code: E-002
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